

Tribes & Climate

Indigenous Environmental Planning

University of NM URP - Lecturer II

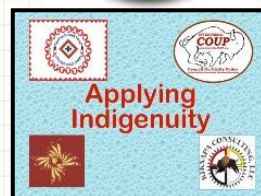
Margaret Herzog, PE, PMP, [PhD \(link\)](#)

Bureau of Indian Affairs (BIA)

Tribal Climate Resilience Program (TCRP)

(Sealaska MBS contractor)

Date: Monday, November 14, 2016



Today! Four Part Round-Table Discussion

- **Climate Science**

- How do we **really** know that the current **disruptive** rate of climate-change is caused by unprecedented **Anthropogenic** (human) factors?

- **Climate Impacts**

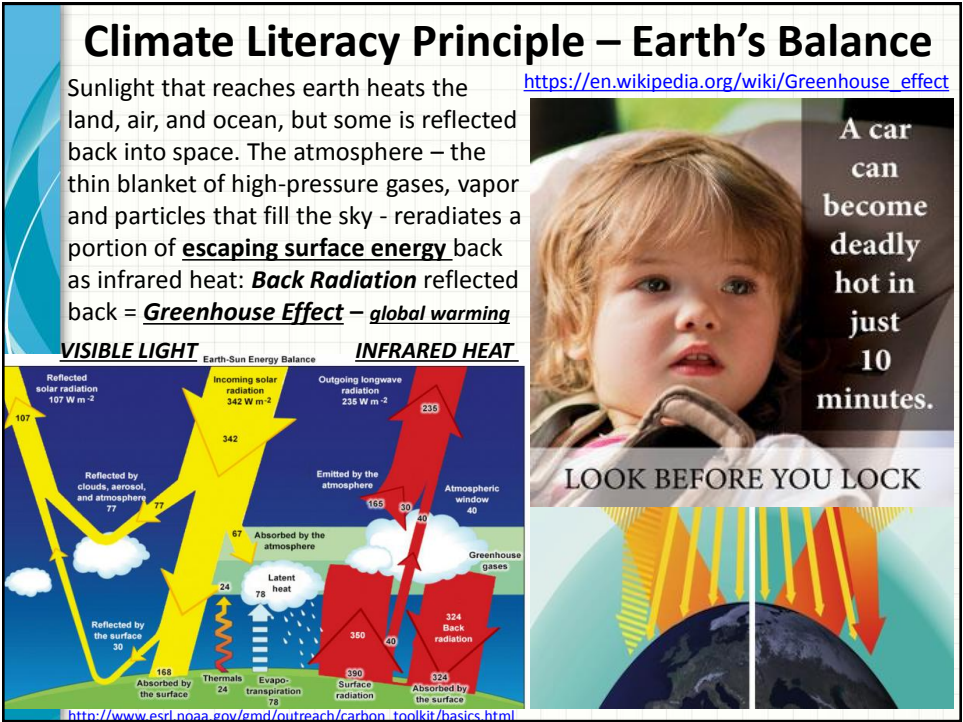
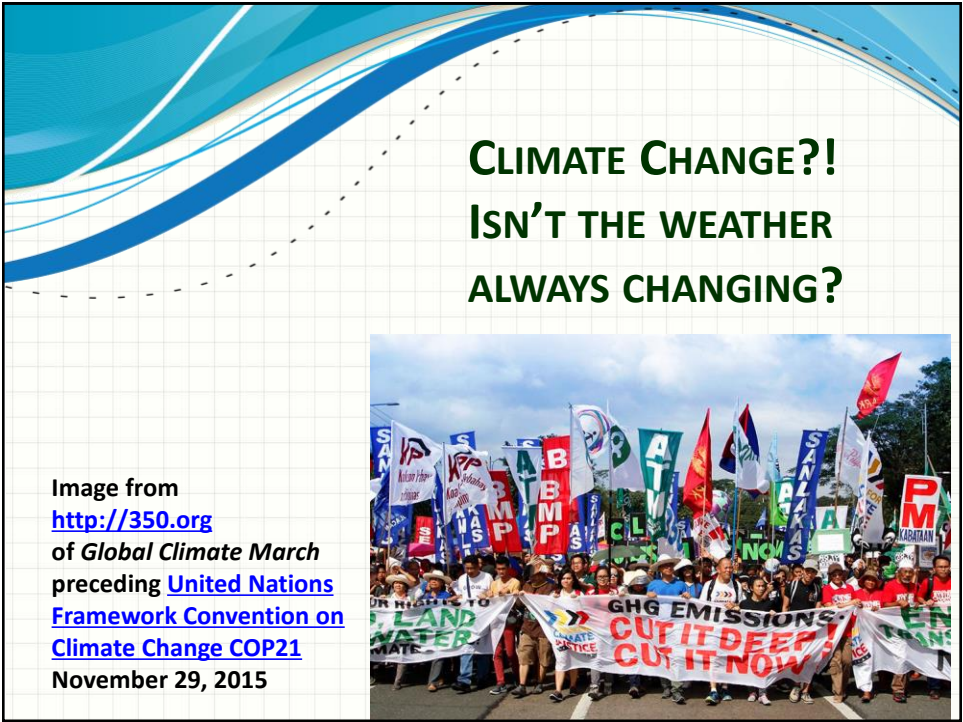
- Which **parameters** do climate scientists **measure** to determine departures from normal rates of change from the bottom of the ocean to the top of the atmosphere?

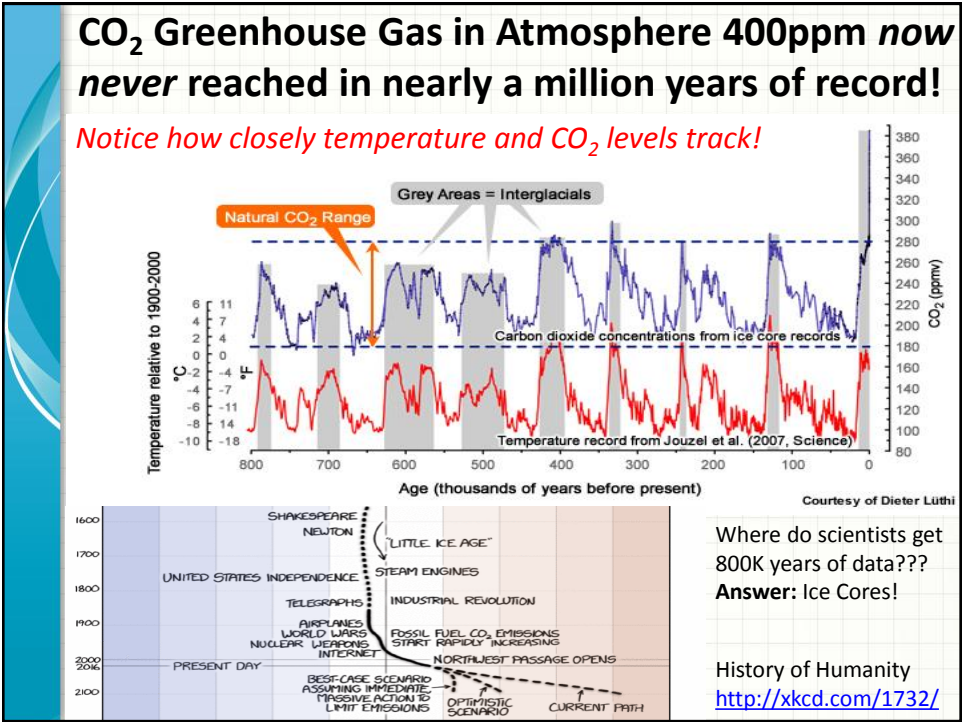
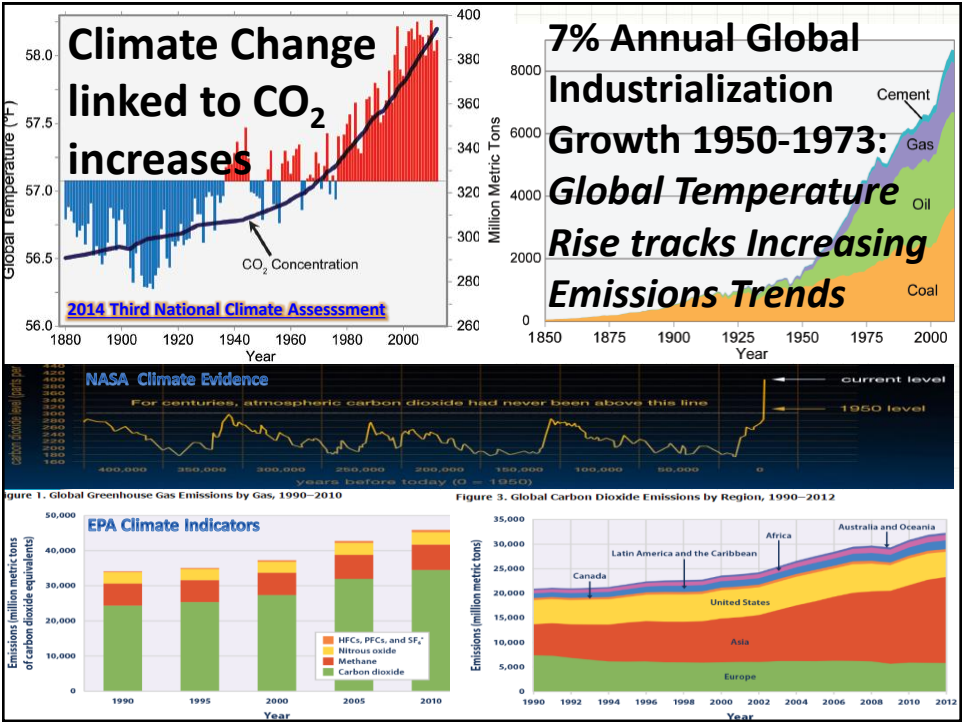
- **Climate Resilience**

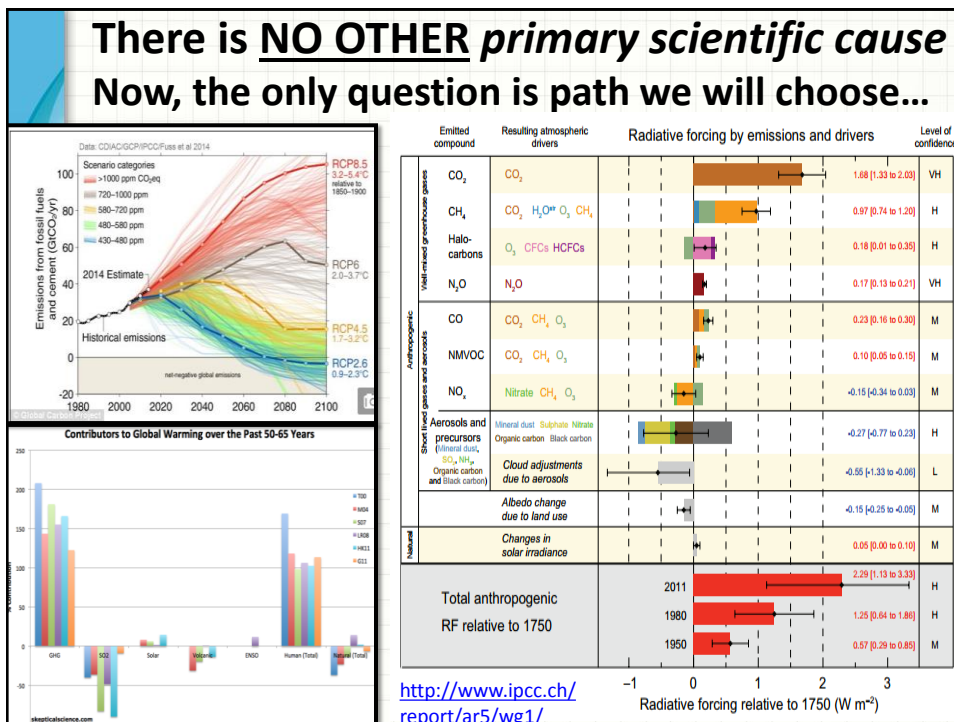
- Even if humans could transform to quit **terraforming** towards an **inhospitable planet**, much damage has already been **locked in**, so how do nations, regions, and communities **mitigate** and **adapt** to reduce risks and impacts now and **into the future**?

- **What is your Role?**

- Unlike any other great challenge, our actions are **directly responsible** for the climate crisis, so how can each of us help?





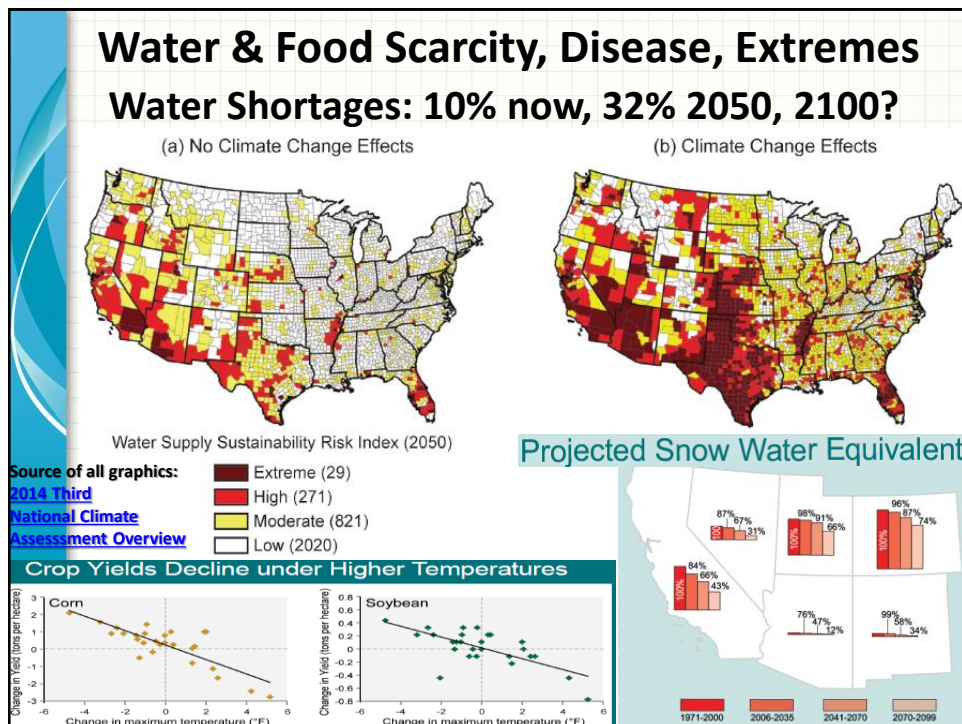


MATTER OF *EVIDENCE*
NOT BELIEF!

<http://nca2014.globalchange.gov/>

Science is irrefutable, evidence like gravity, quickly accelerating

- Arctic sea ice** – albedo white to dark, like dust on snow, feedback affect + sea level rise, sea ice no longer protects Western Alaska coastal communities by fall, torn apart in storm surge
- Ocean heat content** – top half mile measured, great barrier reef bleached this year, worse hurricanes, surface temperature increase leads to toxic blooms and bacteria – vibrio v.
- Temperature** – over land increasing faster, heat waves and droughts, wildfires, dry soils
- Ocean acidification** – one-third CO₂ from atmosphere stored in ocean, increase acidity, prevents hard-shelled creatures, krill, clams, etc. from forming, food chain may be decimated
- Clouds over land increase** – more severe, longer, unexpected, and /or frequent storms
- Snowmelt** – earlier and less coverage, less water will be available downstream in late season
- Permafrost melts** – no firm foundation for roads and buildings, releases methane as feedback
- Health impacts** – higher rates of respiratory illness, vector-borne disease like Zika, accidents



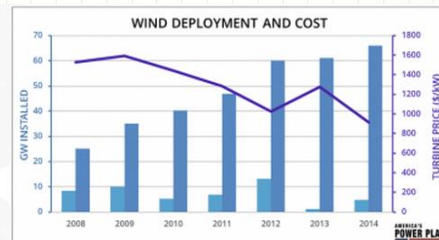
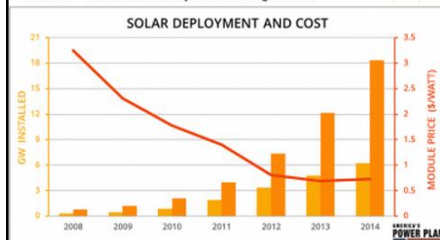
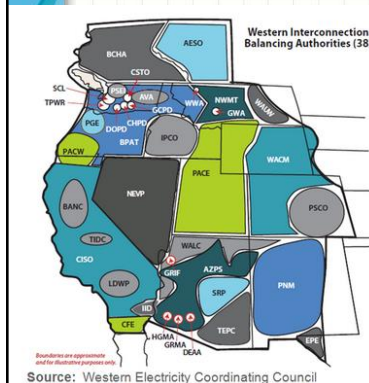
Quantifying contributions getting easier, which should assist with policy development

- Transportation 30% - 5 pounds to produce gas, 19 pounds emitted per gallon, [1000 miles driven equivalent to about 32 sq.ft. sea ice loss](#)
- No feasible way to sequester large amounts of carbon yet, nor reduce solar radiation hitting earth, nor prevent yet unforeseen feedbacks increasing CO₂
- Trees respire CO₂, die and burn, so less natural help that might have hoped, dwarfed, so truly no substitute yet, but reducing emissions in every way
- 80% fossil fuels estimated to remain in ground to reach reduction targets, but Trump administration has indicated interest in increasing fossil fuel output
- If U.S. reneges on COP21 commitments of 30% reductions, other high emitters may also reduce commitments. COP21 goal was 2° - 1.5° better needed to prevent real costs, but costs and suffering likely to increase now
- Worst case scenario, 40 GT / yr CO₂ that humans currently produce could increase to 100 GT/yr by 2100! planet could already reach 4° or more warmer
- 3B/GT +/-yr may be added by U.S. alone throughout Trump years, if stays true to promises of oil & gas development, and it proves economic advantages to producers because the cost to the global community is not incorporated

Michael Bloomberg, analyst / NYC with Sierra Club, Carl Pope

-
- U.S. CO₂ Emissions Historical and Projections**
- Y-axis: Billion Metric Tons (GT)
- X-axis: Year (1992 to 2024)
- Legend:
- Bill Clinton (Solid Blue)
 - George W. Bush (Solid Orange)
 - Barack Obama (Solid Grey)
 - Hillary Clinton (Dashed Blue)
 - Donald Trump (Dashed Yellow)
- | Year | Bill Clinton | George W. Bush | Barack Obama | Hillary Clinton | Donald Trump |
|------|--------------|----------------|--------------|-----------------|--------------|
| 1992 | 5.1 | | | | |
| 1996 | 5.5 | | | | |
| 2000 | 5.8 | 5.8 | | | |
| 2004 | | 5.9 | | | |
| 2008 | | | 5.8 | | |
| 2012 | | | 5.3 | | |
| 2016 | | | 5.3 | 5.3 | 5.3 |
| 2020 | | | | 5.2 | 5.4 |
| 2024 | | | | 5.1 | 5.7 |
- Source: Lux Research, Inc.
www.luxresearchinc.com

- World Leaders
- States, Cities & Tribal Nations
- Business Leaders
- Scientists and Researchers
- You and Me – our communities
- TOGETHER we can speed the transformation to net zero!

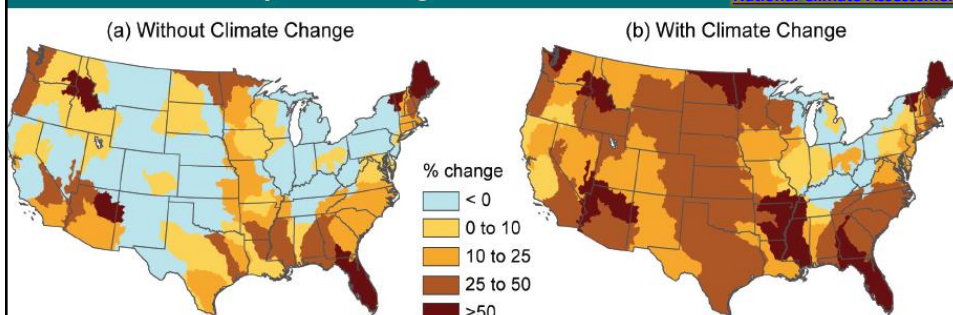


Risks to West may increase with 2016 election results

- Public lands could be leased with fewer regs or sold
- Wildlife could lose federal protection, affecting Tribes
- Irreversible environmental degradation may accelerate
- Lesson to vote! Try not to be apathetic, act each day!!
- *Tribes and Climate* at forefront of meaningful transition..

Projected Changes in Water Withdrawals

Source All Graphs 2014 Third National Climate Assessment



Communicating Climate for ACTION!

- Psychology of Climate Change Communication

http://guide.cred.columbia.edu/pdfs/CREDguide_full-res.pdf

Framing Key! Make Message Matter Broadly, Health/Security, Stories

- Connecting on Climate - Emphasize solutions and benefits at home

<http://www.connectingonclimate.org/>, [15 Steps to Effective CC Communication](#)

- How to talk about Global Warming in Plain English

<https://www.scientificamerican.com/article/how-to-talk-global-warming-in-plain-english/>

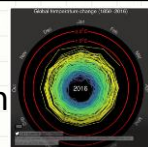
- [Climate Action](#) is infectious, [Spread the Disease!](#)

- Lazy Person's Guide to Saving the World

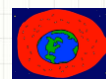
<http://www.un.org/sustainabledevelopment/takeaction/>

- Baseball, Steroids, and Climate Change

<https://www2.ucar.edu/atmosnews/attribution/steroids-baseball-climate-change>



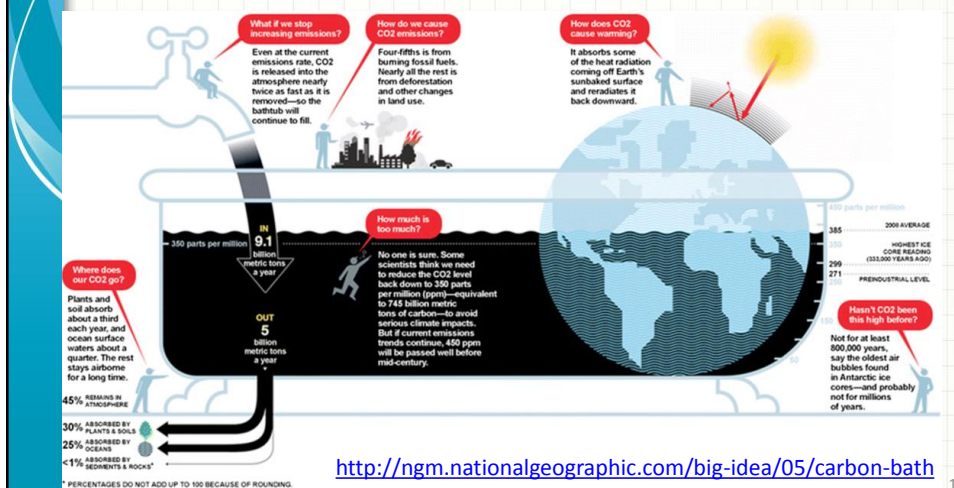
THE
LAZY PERSON'S
GUIDE TO
SAVING THE WORLD



NatGeo: Bathtub Effect Infographic Best!

- Understanding *Accumulation and Growing Impacts*

<http://www.sciencedirect.com/science/article/pii/S0749597808000447>



Tribes & Climate Strategies and Preferred Methods



<http://risingvoices.ucar.edu>

Indigenous People Face Disproportionate Impacts of the Climate Crisis on Lifeways

Food Like Wild Rice Cannot Grow in Traditional Ranges



Infrastructure Falls Apart and Homes Sink in Alaska



Source of images:
[2014 Third National Climate Assessment Overview](#)

Bring back the stories...December 2015


- COP21 Paris 11/30 - Delegates from 195 countries + EU bloc
- Cut CO₂ to achieve no more than a two degree overall rise
- Some islands will not survive even 1.5° increase

Christiana Figueres
Coast Rica Lead Effort
Invoked ancient jaguar moon goddess **Ix Chel**

- Weaving
- Creativity
- Reason




*A Tapestry:
Must be
Woven
Together
From Our
World's Great
Diversity
To Unite Us
In Common
Cause for Our
Common
Home*



TRIBAL LEADERSHIP DESPERATELY NEEDED IN ADDRESSING THE CLIMATE CHALLENGE

Karen Diver, Fond du Lac Band of Lake Superior Chippewa (FDLC) served on *Whitehouse Task Force on Climate Preparedness & Resilience* after being nominated by Great Lakes Intertribal Council. *FDLC* ratified the Kyoto Protocol in early 2007 and works to reduce energy use and build resilience.



<http://indiancountrytodaymedianetwork.com/2013/12/26/conversation-karen-diver-native-appointee-presidential-climate-change-task-force-152848>

Dan Wildcat has issued a **RED ALERT** to all!

- Learn from non-“weeds” who’ve lived in symbiotic relationships with nature from time immemorial
- Deep awareness and communication with all living beings as relatives vs. reductionist science by discipline
- “Learning by doing”- everything is an experiment evolving in concert and pace with ecosystems of place
- Those in constructed reality forget about emergent properties of complex systems; even the smallest neglected interrelationship or feedback may impact
- No dualisms / dichotomies – many paths & ways
- Combat lack of imagination with INDIGENUITY!
- **Tribal GIS Professionals** must play their role!!

Red Alert!: Saving the Planet with Indigenous Knowledge by Professor Wildcat, Haskell Env Prog

Six Tribal Nations Subtopics

Strategies for Building Climate Resilience

<http://toolkit.climate.gov/topics/tribal-nations>

1. [Assessment and Planning](#)
2. [Adaptation](#)
3. [Mitigation](#)
4. [Disaster Risk Reduction](#)
5. [Relocation](#)
6. [Capacity Building](#)
7. [TRIBAL HEALTH](#)
(new topic under consideration)

<http://toolkit.climate.gov/tribal/>
Tribal Climate Resilience
Resource Guide

Organizes [Tools](#) and [Taking Action Stories of Resilience](#)

**Jump from
Tribal Fact Sheet
to Tribal Nations
by selecting an
Example or Tool!**

1. Tribal Mitigation Efforts – Best hope!

<http://toolkit.climate.gov/topics/tribal-nations/mitigation>

- Reduce causes of future climate change, esp. CO₂
- Less adaptation needed, if less heating occurs
- Methods favored:
 - Casinos and administrative building – zero net energy ([FDLC](#))
 - Food waste composting from casinos, schools and farms ([Tulalip](#))
 - Energy efficient, zero-net buildings, school greenhouse 2 elders
 - Solar roof-top installations and micro-grid applications ([BLR](#))
 - Tribal governments set their own policies, beat COP21 goals!
 - Electrical vehicle plug-in stations and rebates, mass transit
 - Climate education integrated with native language and ways
 - Partner with government agencies: DOE, HUD, USDA, EPA
 - Save money by paying less in long-term energy costs
 - Not dependent on outside utility or strong partnership with it
 - Less affected by extreme weather and economic downturns

DOE Tribal Energy <http://energy.gov/indianenergy/>

ENERGY.GOV

Office of Indian Energy Policy and Programs

Search Energy.gov

TECHNICAL ASSISTANCE


EDUCATION & TRAINING

FUNDING

PROJECTS

ABOUT US

OFFICES >



QUICK LINKS

Alaska Native Villages

Apply for Technical Assistance

Climate Action Info

Energy Resource Library

Funding Opportunities

Webinars

Workshops

New Tribal Climate Action Resources Page

Find climate information and resources—including tribal climate action and leadership updates; climate mitigation and adaptation technical assistance, workshops, grants, webinars, and training; and related reports, websites, and tools—in a centralized location.

READ MORE

See also the [DOE Fact Sheet](#) in the Tribal Climate Resilience Resource Guide

Indian Affairs IEED [Tribal Toolkit](http://teeic.indianaffairs.gov/) support and Tribal Info Clearinghouse <http://teeic.indianaffairs.gov/>

TEEIC

Tribal Energy and Environmental Information CLEARINGHOUSE

Environmental resources for tribal energy development

Office of Indian Energy and Economic Development

Energy Resources

Assessments/Monitoring

Laws & Regulations

Home

News

FAQ

Glossary

The Tribal Energy and Environmental Information Clearinghouse (TEEIC) provides information about the environmental effects of energy development on tribal lands.

The site includes information about energy resource development and associated environmental impacts and mitigation measures; guidance for conducting site-specific environmental assessments and developing monitoring programs; information about applicable federal laws and regulations; and federal and tribal points of contact.

Energy Resources

Energy resource development, environmental impacts, legal requirements, mitigation measures, programs/incentives, and case studies.

Biomass

Carbon Sequestration

Coal

Geothermal

Hydrokinetic

Low-Head Hydropower

Oil & Gas

Solar

Transmission

Wind

Efficiency & Conservation

Assessments & Monitoring

How to prepare project-specific impact assessments, identify appropriate mitigation measures, and develop monitoring programs.

Site-Specific Assessments

Monitoring Programs

Laws & Regulations

Federal laws and regulations applicable to energy development on tribal lands.

Acoustics (Noise)

Air Quality

Cultural & Paleontological Resources

Ecological Resources

Energy Resource Development

Environmental Justice

More...

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

12

2. Tribal Adaptation Efforts

<http://toolkit.climate.gov/topics/tribal-nations/adaptation>

- Climate impacts already occurring and projections ascertain much worse is already “locked in”, so tribes are doing their best to adapt despite constraints
- Methods favored
 - Shifting Species – substitution, assisted migration, [seed banks](#)
 - Invasive Species – removal, [management](#), reuse, acceptance
 - Cultural Resources – coastal & stream bank protection, [THPO](#)
 - Cultural Continuity – [STEM students](#) with language & culture
 - Elders and Knowledge Integration – methods to use power of deep observation and understanding of connectivity, nature-based/honoring, ecological / technological progress ([CSKT](#))
 - Networks and Partnerships – [Inter-Tribal](#) policy through consultation, [standing groups](#), and [NCAI](#) / [NARE](#) nationwide

25


Housing and Urban Development (HUD)

<http://bia.gov/WhoWeAre/BIA/climatechange/Resources/Agencies/AgencyFactSheet/index.htm?ag=hud>

- Healthier Tribal Housing – combining best of old & new
<http://ehp.niehs.nih.gov/120-a460/> natural, place-based
- Office of Native American Programs (ONAP)
http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/ih
- Resources for Tribal Leaders – build skills & vision
http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/ih/codetalk/triballeaders
- Community Relocation Resources (Strategy 3 of 7 covered)
<http://toolkit.climate.gov/topics/tribal-nations/relocation>
- Newtok Example: Cold Climate Housing Research Center (CCHRC - <http://www.cchrc.org>) collaborations with Alaska Native Health Consortium (ANTHC - <http://anthc.org/what-we-do/community-environment-and-health/center-for-climate-and-health/>)



26



Traditional Knowledges / Traditional Ecological Knowledge Integration

Tribal Climate Resilience Resources
Traditional Knowledges / Traditional Ecological Knowledge

Guidelines for Considering Traditional Knowledges in Climate Change Initiatives will help protect knowledge and holders of TKs

Orientation
 Indigenous traditional knowledges (TKs) have emerged in national and international arenas as rich information for indigenous and non-indigenous climate assessments, policies, and adaptation strategies. With this growing recognition, however, comes potential risks to indigenous peoples in sharing TKs in federal and other non-indigenous climate change initiatives. These resources assist Tribes, Agencies, and other Partners build respectful, complimentary efforts together.

Guidance

- Tribal Nations Summary and References
- Guidelines for TK, Primer, Ethics Essay in Toolkit**
- NP-NH Climate Change Workshop II Report
- First Stewards 2012 Witness Report
- Rising Voices Reports and Outcomes
- AIAN Guide to Build Cultural Awareness

Research Papers

- CMN SDI Model
- Best of 2 Worlds: TEK in ESB Management
- CC and Indigenous Peoples in the U.S.
- Guarding Against Exploitation: TEK & CC
- Engagement that Honors TKs
- TCCG Publications
- IPCC Portal Publications - Books

Federal TEK Awareness

- ACCNCRS TK Guidelines and Primer - Summaries
- CC Through an Intersectional Lens
- USFS Exploring Role of TEK in CC Initiatives
- USFS Bridging the Gaps that Divide
- US FWS Basic TEK Info
- NIH TEK and Its Value for EHS
- NIH TEK Workshop Day 2
- EPA Using TEK to Adapt to CC
- EPA TSC: TEK in Policy and Decision Making
- NOAA TEK and CC Impacts
- NPS Integrating TEK into NRM
- Tribal Engagement in CSCs and

Examples

- CMN SDI Model to Inform Climate Initiatives

When working with Tribal Nations, federal and academic projects and partners are often enriched by the deeply integrated understanding of the relationships among all living things that indigenous people have honed since time immemorial. This may lead to breakthroughs in adaptation through keen natural observations, unique perceptions, and a focus on harmonious ways. Learn more with [TKs/TEK](#) links!



NATIONAL *fish, wildlife & plants*
CLIMATE ADAPTATION STRATEGY

<http://www.wildlifeadaptationstrategy.gov>

- ✓ *Shared Solutions to Protect Shared Values*
- ✓ Seven Strategies to Ensure Resilient Ecosystems
- ✓ Video, Brochure, Full Report, Background Papers
- ✓ Taking Actions (Using the Strategy)
- ✓ Engagement (Getting Involved and Involving Others)
- ✓ Learn More about Impacts & Adaptation
- ✓ Adaptation Leadership Award Honors Innovators
- ✓ Case Studies by Region and Habitat Type
- ✓ Join [Landscape Conservation Cooperatives \(LCCs\)](#)!

EPA Tribes & Climate Support

- EPA Tribal Portal <http://www2.epa.gov/tribal/>
 - iGAP funding, EcoAmbassadors, TSC, Alerts
- Tribal addition to Local Climate Action Framework
 - On-demand training, tools, resources, more...
- Tribal Green Building Codes
<http://www3.epa.gov/region09/greenbuilding/codes/>
- Climate Indicators
<http://www3.epa.gov/climatechange/science/indicators/>
- Tribal Pages (Not climate-specific, but tribal programs!)
- Climate Pages (Adaptation, Mitigation, Air, Water, Wastes)
- Regional Pages – contact your EPA RO Tribal Liaison
- See the [EPA Agency Fact Sheet](#) in the Tribal Climate Resilience Resource Guide



EPA New! ArcGIS Story Maps for CREAT

Climate Scenarios Projection Map

Storm Surge Inundation Map

Water Utility Climate Resilience Support Projects



USDA Tribes & Climate Support

- County Extension or Conservation Districts – helpful, but may not be aware of tribal programs, so contact [Intertribal Ag Council](#) for up-to-date grants
- Contact your USDA [State Service Center](#)
- Visit your [NRCS](#) District Office
- Contact your [Regional Climate Hub](#)
- Work with your USDA & [USFS Tribal Liaisons](#)
<http://forestadation.org>



4. Tribal Disaster Risk Reduction (DRR) Efforts

<http://toolkit.climate.gov/topics/tribal-nations/disaster-risk-reduction>

- Extreme weather already disproportionately affects marginalized populations, while climate change will cause more frequent, more devastating impacts
- Methods favored:
 - Discouraging new development or post-disaster redevelopment in vulnerable areas to reduce losses
 - Planning for transportation, including roads and bridges
 - Effective evacuation planning, including the deployment of early warning systems, drought planning triggers
 - Creating multiple evacuation routes and supplies
 - Coordination across jurisdictional boundaries
 - Increasing leadership training and community support
 - Hazard mitigation planning (pre-approved FEMA plan best)

Find BIA Tribal Climate Resilience Program support at:
<http://bia.gov/WhoWeAre/BIA/climatechange/>
or just visit <http://bia.gov> and Select Category: *Climate*

UNM IEP Session #2: *Tribes & Climate*
Monday, 11/14/16 5PM-5PM

FEMA and Tribal Nations: A Pocket Guide
<http://bia.gov/WhoWeAre/BIA/climatechange/Resources/Agencies/AgencyFactSheet/index.htm?ag=fema>

What are you looking for?

Plan, Prepare & Mitigate
Before, During & After a Disaster

Disaster Survivor Assistance
Apply for Assistance, Disaster Declarations

Response & Recovery
Tools, Teams, Individual & Public Assistance

Topics & Audiences
Grants, How to Help, Private Sector, Tribal

Blog, Newsroom, Videos & Photos
News Releases, Social Media, FEMA App

About FEMA
Offices, Careers, Employee Info, Policies, FAQs

Home > Resource & Document Library > Browse > FEMA and Tribal Nations: A Pocket Guide.pdf

Follow FEMA: [Twitter] [Facebook] [YouTube] [Email] [RSS]

<https://www.ready.gov/severe-weather>

Share/Email This Page

FEMA and Tribal Nations: A Pocket Guide.pdf

Developed by FEMA's Office of External Affairs, this guides provides information and resources that may be helpful to Tribal partners. The guide explains the Agency's policies related to tribal engagement, outlines key FEMA programs and how they specifically relate to federally-recognized tribes, and provides contact information for the Agency's tribal liaisons.

See [Disaster Risk Reduction subtopic](#) in the Tribal Nations Topic in the U.S. Climate Resilience Toolkit

FEMA and Tribal Nations: A POCKET GUIDE
FEMA
2014-15-16 October 2014

Manage Floods & Droughts as Single Issue

- Too much and too little water on the landscape must be approached as a [single, inter-related, management issue](#)
- More Intense Floods rip up / overflow banks and uproot vegetation
 - leads to sand mobilization and soil / bank erosion, sedimentation
 - water quality degradation, damages WT/WWTF infrastructure
- Methods Favored
 - Plant TREES! [esp. in urban areas!!](#)
 - [Reconnect](#) fp, wetlands, veg and structures to *capture every drop*
 - Reduce downstream flooding with upstream storage (rights)
 - Store snowmelt that is now or will soon become rain, [control ET](#)
 - Store higher on landscape to trickle down in later dry season
 - Do not drain directly to stream or culvert, plan buffer strips
 - Low-Impact Development (LID) – [UDFCD Volume III manual](#)
 - Implement policies and tech for rain-water harvesting ([Tuscon](#))
 - Examples: [Hopi Raincatchers](#) & [Navajo Sand Dune Restabilization](#)

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

5. Climate Adaptation Planning & Assessment

- Best way to maximize ability to mitigate, adapt, and respond to disasters is through integrated planning and iterative assessment activities
- Methods favored
 - Community-based climate education and valuation
 - Elders involved in policy development to incorporate traditional belief value systems, tech, and protect holders
 - Continually improve all aspects of community resilience
 - Incorporate models agreed upon by all, talking circles
 - Focus on community health, medicine wheel concept
 - Take advantage of self-determination and sovereignty to continually improve policies and regulation to maximize benefits
 - Partner with federal, academic, state, local, non-profit and tribal
 - Leverage resources in community and from without systematically

35

Tribes will not make decisions based solely on Climate & Weather

- Tribes must be able to integrate climate information with their other value drivers
- Information must be relevant to their values & motivations
- They must trust the information source
- Adaptation is easiest understood through a resilience lens and a path walked by others

*Per NOAA David Herring on
Climate Resilience Toolkit
WebEx 6/10/15 presentation*



Water Resources



Development Pressure



Energy Costs

1. Pick a Model, Preferably Tribally-based

- A Framework for understanding a process towards adaptation to provide a path to resilience is key!
- Circle diagrams demonstrating an interactive, stepwise spiral process make sense to most
- Like [Swinomish IHI](#) and [Menominee SDI](#), consider developing your own based on deep help beliefs
- Example – Use Northern Tribes Medicine Wheel concept to focus on health, community, and interconnected meaning



2. Pick Process: 5-Step Adaptation Workflow from the U.S. Climate Resilience Toolkit

Step 1: Identify the Problem

➤ Implement plan & monitor progress toward your goals

Step 2: Assess your vulnerability

➤ Adjust your plan as necessary and iterate as often as needed

Step 3: Identify options to build resilience

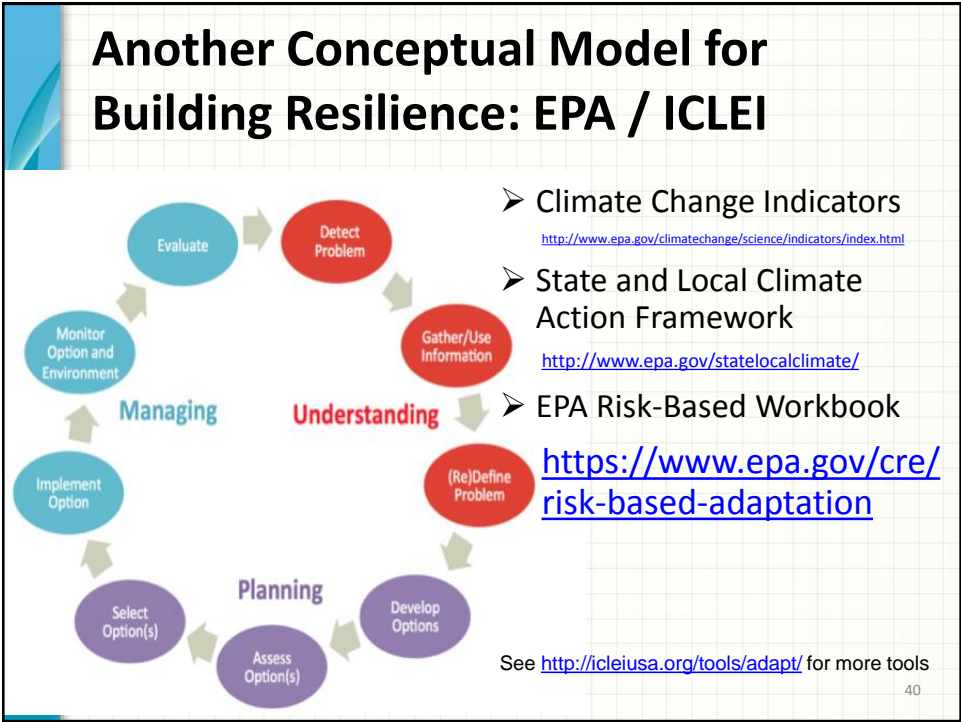
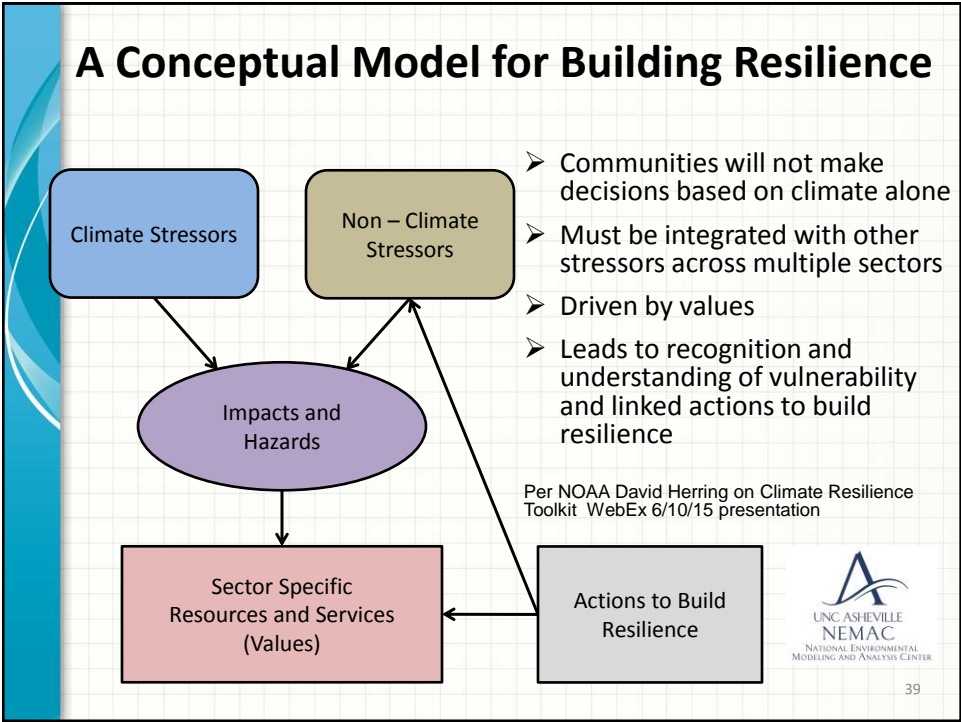
Step 4: Evaluate the risk and choose the best option

➤ Share your story; keep in mind failures and setbacks are also useful for others to learn


Step 5: Implement – Take Action!

Per NOAA David Herring on
Climate Resilience Toolkit WebEx 6/10/15 presentation

38



3. Train: NAU ITEP Tribes and Climate Change Nationwide Focus & Adaptation Planning Course



U.S. Climate Resilience Toolkit

Get Started

Taking Action


Tools

See next course offerings at
New & Improved Website!

http://www7.nau.edu/itep/main/Training/training_cc


Tribal Climate Change Adaptation Planning Toolkit

This collection of templates and other resources assists tribes in their climate change adaptation planning process.



The Northern Arizona University Institute for Tribal Environmental Professionals (ITEP) established its Tribal Climate Change Program in 2009 to provide support and be responsive to the needs of tribes that are preparing for and currently contending with climate change impacts. This program offers training, technical assistance, educational resources, and tools to build the capacity of tribes to address climate change impacts.

Tribal Climate Change Adaptation Planning Toolkit



The Tribal Climate Change Adaptation Planning Toolkit is a collection of templates and other resources developed by ITEP to assist tribes in their climate change adaptation planning process. The materials provided are not "one-size-fits-all" solutions, and users are encouraged to modify the materials to better represent the needs and priorities of their own tribe. The primary users of these materials will be the tribes themselves, although some resources are used as participants in the regularly offered training.

Webpage:
[Tribal Climate Change Adaptation Planning Toolkit >](#)

Topic:
[Tribal Nations > Assessment and Planning >](#)

Taking Action:
[Mescalero Apache Tribe Adapts to a Warmer and Drier Climate >](#)

Training/Tutorials:
[ITEP Tribal Climate Change Trainings >](#)
[ITEP Tribal Climate Change Webinars >](#)

NWF ClimateSmart Conservation through FWS NCTC Planning Course & Tools (Tribal Adapted Versions sponsored by CSCs!)

Climate-Smart Conservation provides guidance to natural resource managers and conservation professionals for carrying out climate adaptation and incorporating climate considerations into their work. Developed collaboratively by a federal, state, and non-governmental organization (NGO) expert workgroup, the peer-reviewed 262-page publication is available in both hardcopy and electronic form. A companion training course based on the guide is offered through the U.S. Fish and Wildlife Services National Conservation Training Center (see link at right).

The guide provides an overview of how climate change may affect species and ecosystems, offers general principles for successful climate adaptation, and outlines a set of "key characteristics" of climate-smart conservation. The guide is organized around a generalized framework for adaptation planning referred to as the "climate-smart cycle." This approach acknowledges that user needs, capacities, and resources are variable, and that there is no one-size-fits-all for adaptation planning. Instead, climate-smart conservation emphasizes the need for using an intentional and transparent process to assess climate-related



See next course offerings
<http://training.fws.gov/courses/programs/climate-change/schedule.html>

Communicating Climate Change: [OUT8041](#)
ClimateSmart w Scenario Planning [ALC3187](#)

URL:
<http://www.nwf.org/climatesmartguide>

Webpage:
[National Wildlife Federation | Guide to Climate-Smart Conservation >](#)

Topic:
[Ecosystem Vulnerability >](#)
[Biodiversity Conservation >](#)
[Tribal Nations > Assessment and Planning >](#)

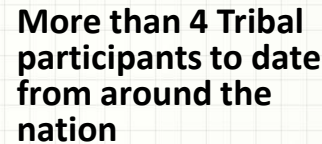
Training/Tutorials:
[U.S. Fish and Wildlife Service | Climate-Smart Conservation Course >](#)

Partners:
[National Wildlife Federation >](#)

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

21

<http://www.mfpp.org/csu/>



- **Alaska Norton Bay**
- **Tulalip**
- **Red Lake**
- **Nez Perce**

A few most used by Tribes

- **UW Climate Impacts Group**
<https://cig.uw.edu>
- **Desert Research Institute**
<https://www.dri.edu>
- **Climate Readiness Institute**
<http://climatereadinessinstitute.org>
- **Georgetown Climate Center**
<http://www.georgetownclimate.org>



6. Tribal Capacity Building Strategy

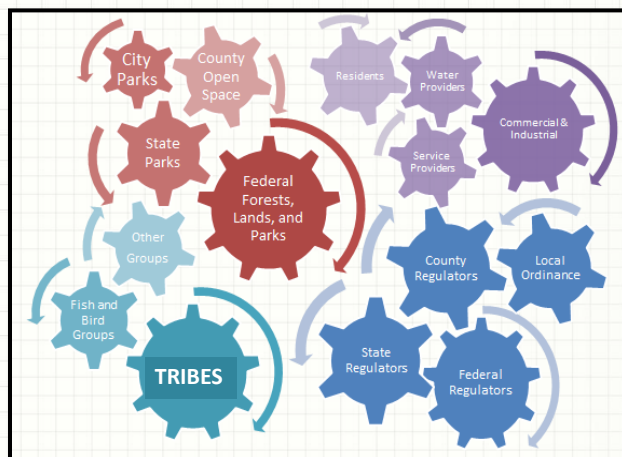
<http://toolkit.climate.gov/topics/tribal-nations/capacity-building>

- Economically, Historically, Physically and Circumstantially Tribes are disproportionately vulnerable to climate shocks and surprises
- Methods favored
 - Use all federal, state and local government programs at the Tribes disposal ([Mescalero example](#), [CMN SDI example](#))
 - Casino tribes typically have more resources and networks
 - Provide culturally-appropriate opportunities for outsiders
 - Build coalitions among environmentalists and/or landowners that share common interests ([Rooted in the Mountains](#), [Tulalip](#))
 - Elders must be continually involved in expanded youth action
 - Youth must serve the elderly with school produce and meals
 - Systematically learn and apply the principles of Network Weaving: <http://www.orgnet.com/BuildingNetworks.pdf>

45

Capacity Building. Leveraging Networks and Partnerships to Build Tribal Resilience

Planning and Implementation Support Networks



Margaret Herzog, PE, PMP, PhD

BIA TCRP IT/GIS Systems and Services

R9 Tribal EPA Conference, Session 2 of 2

Wednesday, 10/23/16 2:45-3:45PM



MAXIMIZING CLIMATE COLLABORATIONS



47

Resilience

- 1. Specified Resilience**
Threshold on underlying controlling variable
Changes slowly relative to variable of concern
- 2. General Resilience**
Ability to absorb unexpected shocks
Community's ability to *pitch in* as needed

Walker, B.H., and D. Salt. 2012. Resilience Practice: Building capacity to absorb disturbance and maintain function. Island Press, Washington, D.C.

**Systematic, conscious network weaving may help
improve general resilience faster!**

48


Underlying *Social* Structure

BELIEFS – *shared* views about what is true “*equality*”

VALUES – *shared* preference system of “*right, beautiful*”

NORMS – *shared* expected patterns of behavior *by role*
(NOT Schwartz-type *personal* norms, but
descriptive and injunctive social norms)

SANCTIONS – rewards for “*normalizing*”, penalties if do not!

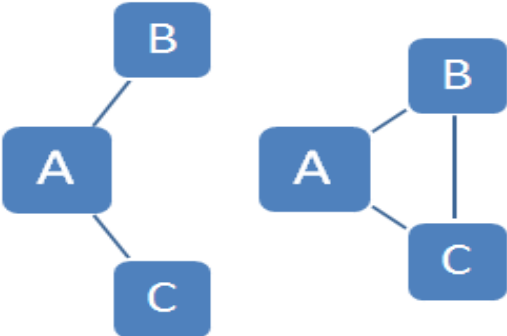


Each *group link* represents *more potential understanding and access, less opposition*
(us vs. them) , if bridged...


49

Network Concepts – Triadic Closure

If A is friends with both B and C, over time they will often be introduced, leading to at least a weak tie, and more often a strong tie, since likely to also exhibit similar *homophily*



<http://www.stanford.edu/dept/soc/people/mgranovetter/documents/granstrengthweakties.pdf>

 Triad closure bias – If a friend of yours isn’t a friend of mine, we’re more likely to sever or weaken ties in time, as well

EMERGENCE

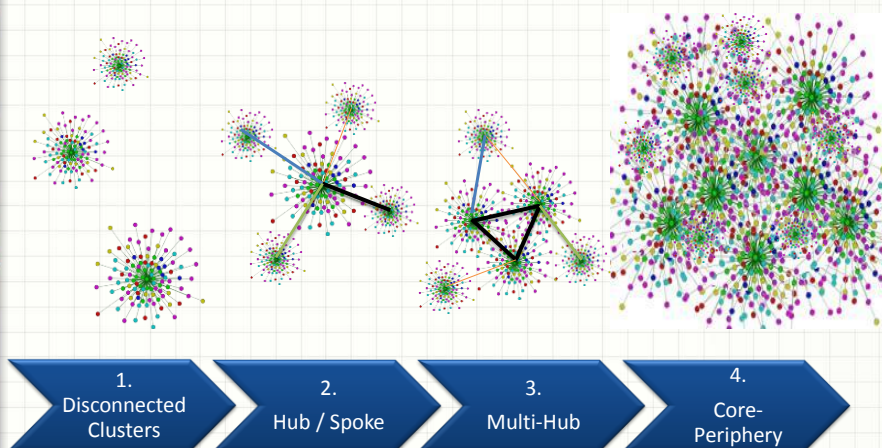
Whole different from sum of its parts

EMERGENT PROPERTIES

- Resulting when a thing relates in some way to another thing What results when *many* things relate to *many* other things? Results in machine-like or organism-like properties at scale
- Should you only study resource users individually? Or should you also consider the self-organizing, evolving characteristics of groups, organizations, and institutions?
- An organization is a *rarified* constituency, NOT a *group* – Trout Unlimited does not represent all anglers, but a shared, *motiving* organizational mission staffed by lawyers, policy experts, and scientists with *formalized* values, beliefs, norms, and sanctions

51

SNA Network Maturity Model: Becoming a *Network Weaver*



Adapted from [Krebs 2006](#), [Zolli & Healy 2012](#)

Systematically evaluate gaps and hubs and then seek to improve overall structure

52

SNA – Benefits of a Systematic Approach

• Ad-hoc Collaboration

- ☐ Tend to focus on one sector
- ☐ Regulators considered enemies
- ☐ Community token role
- ☐ Uncoordinated activities
- ☐ Tend to be too localized or federal
- ☐ Grant funding widely dispersed
- ☐ Few powerful, knowledgeable leaders control the agenda
- ☐ Few ways to be heard, considered
- ☐ Project permitting drawn out
- ☐ Scramble in an emergency
- ☐ Distrust, hardened positions
- ☐ Limited funding and resources
- ☐ Overlapping info, since don't share
- ☐ Projects not assessed
- ☐ Ongoing monitoring limited to regs
- ☐ Community suspect of groups
- ☐ Brokering / Bridging is discouraged

• Network Weaving

- ☐ All levels of government/regulators
- ☐ All county / city departments active
- ☐ Business plays key resource role
- ☐ Academics help all "learn by doing"
- ☐ Network continually matures
- ☐ Funding continually increases
- ☐ More groups volunteer to join
- ☐ More individuals join groups
- ☐ Community members multiple hats
- ☐ Industry sponsors improvements
- ☐ Grant funding matched and shared
- ☐ Multi-faceted, multiple coordinators
- ☐ Expedited permitting processes
- ☐ Ready to meet unknown challenges
- ☐ Communicate informally, too
- ☐ Meet regularly
- ☐ Have more fun
- ☐ Adapt and transform

Other benefits?



Institutional Entrepreneurs

(Bodin & Prell, 2011)

- Experts in building trust and resolving conflicts
- Mobilize key resources from various groups
- Navigate socio-ecological transition zone
- Respond to crisis with pre-planned adaptive mode
- Transform failing systems
- Strengthen informal networks by coalition building
- Knowledge brokering
- Foster exchange and collaboration

54

SO THEN.... WHO ARE YOUR POTENTIAL TRIBAL CLIMATE COALITION PARTNERS?

***And how might we all better support
one another through enhanced
coordination and communication?***

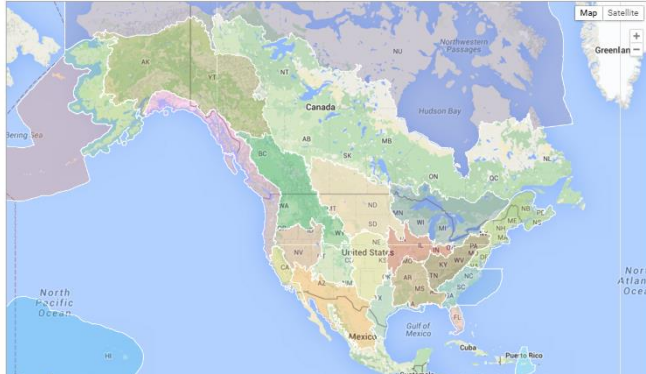
DOI Climate Science Centers Support Tribes

- ✓ BIA Tribal Climate Liaisons being placed in each CSC
- ✓ Tribal reps help guide [Advisory Committee on Climate Change and Natural Resource Science](#)
- ✓ Climate Research Projects and Training for Tribes
- ✓ Download climate data and research reports
- ✓ [Guidebook for Traditional Knowledges, and a Primer for Climate Change and Indigenous Peoples](#)
- ✓ Some TCUs and tribes serve in CSC consortiums
- ✓ [Work with your CSC](#) to ensure in 5-year reauthorization TCU, tribes or intertribal groups become consortium members

DOI Landscape Conservation Cooperatives (LCCs)

Find an LCC: <http://lccnetwork.org/map>, [LCC Fact Sheet](#)

Landscape Conservation Cooperative Network



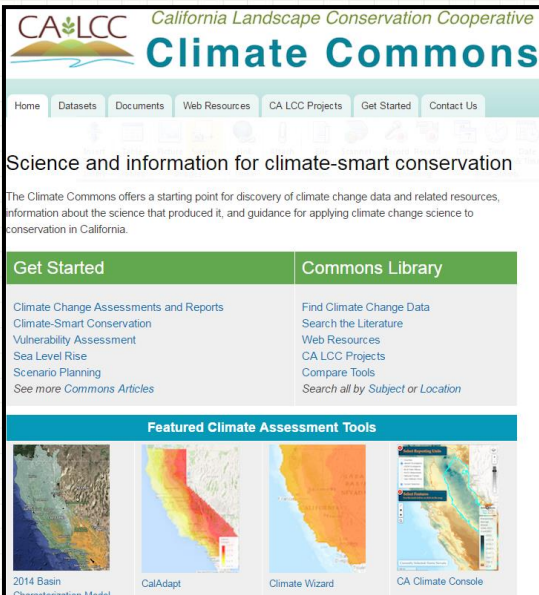
- Aleutian and Bering Sea Islands
- Appalachian
- Arctic
- California
- Caribbean
- Desert
- Eastern Tallgrass Prairie and Big Rivers
- Great Basin
- Great Northern
- Great Plains
- Gulf Coast Prairie
- Gulf Coastal Plains and Ozarks
- North Atlantic
- North Pacific
- Northwest Boreal
- Pacific Islands
- Peninsular Florida
- Plains and Prairie Potholes
- South Atlantic
- Southern Rockies
- Upper Midwest and Great Lakes
- Western Alaska

- LCCs may collect and analyze phenology data – how ecology is changing, bud bursts, shifting species
- LCCs may have one or more tribes on their steering committee or subcommittees to help prioritize projects
- LCCs assist tribes to coordinate efforts across larger areas, longer-term with more diverse stakeholders

CA LCC California Climate Commons

<http://climate.calcommons.org/>

- Climate change science
- Climate vulnerability assessments
- Climate adaptation planning
- Climate change tools
- Climate change projects
- Climate Datasets and documents



CA LCC California Landscape Conservation Cooperative Climate Commons

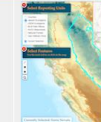

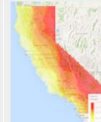

Home Datasets Documents Web Resources CA LCC Projects Get Started Contact Us

Science and information for climate-smart conservation

The Climate Commons offers a starting point for discovery of climate change data and related resources, information about the science that produced it, and guidance for applying climate change science to conservation in California.

Get Started	Commons Library
Climate Change Assessments and Reports	Find Climate Change Data
Climate-Smart Conservation	Search the Literature
Vulnerability Assessment	Web Resources
Sea Level Rise	CA LCC Projects
Scenario Planning	Compare Tools
See more Commons Articles	Search all by Subject or Location

Featured Climate Assessment Tools



2014 Basin Characterization Model

CalAdapt

Climate Wizard

CA Climate Console

CA LCC Tribal Team

<http://californialcc.org/tribal-team>

- Chris Bujalski, BIA current team lead
- Dore Beitz, Mewuk incoming lead
- Participate on project proposals
- Guide Ecoregion Adaptation Plans
- TEK Resources
- 2017 adaptation training and webinar series

Desert LCC Tribal Working Group

<https://desertlcc.org/group/tribal-working-group>

- Seeking new Tribal Liaison for expanded Tribal Outreach
- BIA SW and Navajo Regions participate
- 26 Tribes live in Desert LCC area
- Focus Climate Change Conservation Initiatives
- Inter-tribal network

Great Basin LCC S-TEK Working Group

<http://greatbasinlcc.org/tribal-resources>

- Sagebrush Grasslands focus
- BIA Western Region participates
- Climate Projects
- Climate Trainings
- Climate Resources

Tribal Representatives

Ed Naranjo	Confederated Tribes of the Goshute Reservation
Kim Townsend	Duckwater Shoshone Tribe
Gaylord Robb	Paiute Indian Tribe of Utah
Scott Hauser	Upper Snake River Tribes Foundation
William Campbell	Inter-Tribal Council of Nevada

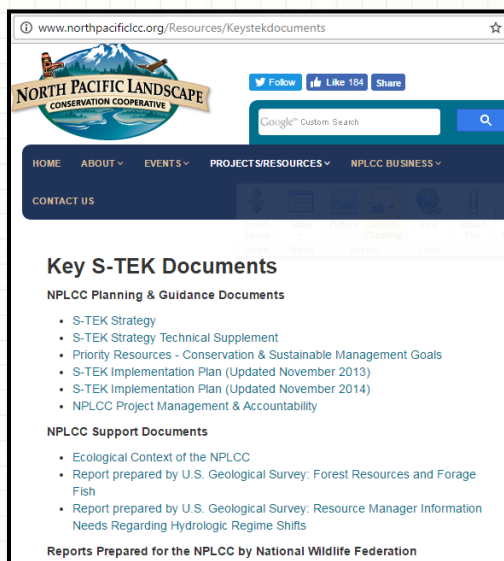


North Pacific LCC Tribe & First Nations

<http://www.northpacificlcc.org/NPLCCBusiness/tribes-first-nations-committee>

<http://www.northpacificlcc.org/Resources/Keystekdocuments>

- Annual NW Climate Magazine just released
- Newsletter
- PNW Tribal CC Network collaboration
- Climate Projects
- Climate Training
- Funding Opportunities
- Internships



UofAz NNCAP and SW Tribal CC Network

<http://www.nncap.arizona.edu> (new! website update)



The Native Nations Climate Adaptation Program (NNCAP) at the University of Arizona works with Native American tribes and indigenous populations in the western United States to solve environmental and climate change issues.

Southwest Tribal Climate Change Network

In addition to monthly network calls, contact the program for *specific support* by request!

Example: Tribal Profiles to support proposal development

Co-located with incoming SW BIA Tribal Climate Liaison!

ITEP Adaptation Training, Tools, Resources

<http://www7.nau.edu/itep/main/ClimateChange>



The calendar includes conferences, trainings, webinars and other events. The URLs and email addresses in a calendar entry are not "clickable".


Do you know of an upcoming event not listed here? Please send it to Susan.Wotkyns@nau.edu.

ITEP Tribal Climate Change

Today August 2015

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	26	27	28	29	30	31
	Workshop: New Mexico Tribal Leader Forum and Commu		Training: Climate-Smart Conservation		Workshop: Springs Assessment and Climate Adaptation W	
1	2	3	4	5	6	7
8	9	10	11	12	13	14

American Indian Higher Education Consortium (AIHEC)

TRIBAL Colleges: *Educating, Engaging, Innovating, Sustaining*

HomeWho We AreWho We ServeWhat We Do

Land and Place

AIHEC has developed a TCU Exchange Network
<https://tcuexchange.org/>

EPA Tribal ecoAmbassadors

The U.S. Environmental Protection Agency (EPA) seeks to strengthen partnerships with Tribal Colleges and Universities (TCUs) to address the most pressing environmental issues. Recognizing AIHEC's unique relationship and the important role TCUs play within their communities, EPA has partnered with AIHEC to support research in partnership with TCUs. One or more TCU professors and students in the use of funding and technical support from EPA to solve environmental problems in tribal communities. Together AIHEC and EPA aim to provide ongoing project support, provide training, and develop resources for tribal communities.

EPA Tribal ecoAmbassadors, USDA, VISTA, and Other Partners
<http://www.aihec.org/our-stories/landPlace.cfm>

TCUExchange

ABOUTTCU/VISTA PROGRAMFOR CONTRIBUTORS

TCUExchange RESOURCE GUIDES

The TCUExchange is a collaborative effort to exchange information that supports TCUs in their pursuit to build minds, communities, and value in Indian Country. The TCUExchange includes resource guides and this online community. The resource guides are short publications that take a holistic approach to describe how a specific resource was developed at a Tribal College or University.

- Bay Mills Community College, Waishkey Bay Farm 2006-2014: How Support Partnerships and Funds were Secured to Build this Research and Demonstration Farm 2014.10
- United Tribes Technical College's Approach to Building Food Sovereignty 1969-2014: Food growing, gathering, preparation, access and security 2014.10

American Indian Science and Engineering Society (AISES)

AMERICAN INDIAN SCIENCE AND ENGINEERING SOCIETY

Become a Member | Member Login

Stay Connected | Donate Now | Contact Us

About AISESMembershipOur ProgramsCareersScholarships & InternshipsNews & EventsSupport AISESNational Conference

Working to Increase the Representation of American Indians and Alaskan Natives in Engineering, Sciences and Other Related Technology Disciplines

Power-Up Workshops

Power Up workshops are designed to boost student engagement in science fairs and to improve the quality and quantity of science fair research and projects entered at the local, national, and international level. The target audience, for these ½ day workshops, is middle and high school students (grades 5 through 12) and their educators.

Learn More



> Nat. Conf. Annually, next year at NASA in Boulder!

> Student Internships, Scholarships, Mentoring

<http://www.aises.org>

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

33

Indigenous People’s Climate Change Working Group (IPCCWG)

- Dan Wildcat and Bull Bennett started the group
- Meet in the Spring and Fall
- Working Groups meet throughout the year more
- NASA ELO summer intern program prepares college students for climate careers (<http://kiksapa.com>)



https://www.facebook.com/pages/Indigenous-Peoples-Climate-Change-Working-Group/205930409437836?hc_location=timeline

First Nations Development Corp (FNDI)



First Foods, Gardens,
Community Development, Seed Banking
<http://www.firstnations.org>

- Also Works with TCUs and Foundations on Projects
- Helps Communities think through their problems together




Food Sovereignty SUMMIT


This is a forum for sharing and collaboration to build healthy food systems within our com

October 26-29, 2015 • Radisson Hotel • Green Bay, WI

Many New University-based Climate Adaptation Support Programs Developing Regularly – ask closest institution...



- **PennState SCRIM**
<http://www.scrimhub.org>



A few most used by Tribes

- **UW Climate Impacts Group**
<https://cig.uw.edu>
- **Desert Research Institute**
<https://www.dri.edu>
- **Climate Readiness Institute**
<http://climatereadinessinstitute.org>
- **Georgetown Climate Center**
<http://www.georgetownclimate.org>

The Evergreen State College Native Cases Project
and Emory U. CASES Online

HOME ABOUT CASES TEACHING WITH CASES ASSESSMENT

ENDURING LEGACIES

Native Case Studies

FEATURED CASE STUDY

The Twilight Saga and the Quileute Indian Tribe: Opportunity or Cultural Exploitation?

Barbara Leigh Smith


This case explores the impact of a blockbuster series of books and films, "The Twilight Saga," on the Quileute Indian Tribe and the small town of Forks, Washington.

READ CASE

EXPLORE CASE STUDIES

Browse cases by discipline, alphabet (a-z), theme or featured tribe

Barbara, Linda, and Jean can help adapt Tribal Nations cases into case curriculum



WHY NATIVE CASES?

Teaching with cases has great results!

Students are more engaged in class

Students demonstrate stronger critical thinking skills

Students view issues from multiple perspectives

Students develop positive peer relations

Students develop a deeper understanding of content

Non-Native students increase awareness of Native perspectives & issues

Students feel curriculum is more culturally relevant


Learn more →

<http://nativecases.evergreen.edu/> & <http://www.cse.emory.edu/cases/>

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

35

Early Career Climate Forum



Early Career Climate Forum

Derived by students from DOI Climate Center Internship Climate Bootcamps

Any student interested in Climate can join!

Majorities of American Catholics and Non-Evangelical Protestants Think Global Warming is Happening; Half of Evangelicals Do As Well

	Yes	Disagree	No
Total Americans (Oct 2010)	65%	24%	11%
Catholics (protest)	74%	17%	9%
Protestants (non-evangelical) (protest)	74%	17%	9%
Evangelicals (protest)	51%	30%	19%

What is your best estimate that global warming is happening?

Source: Pew Research Center, Oct. 2010

Pope Francis and Re-Framing the Discussion on Climate Change

JUL 20, 2015 • ZACHARY SCHUSTER

The biggest climate change news of 2015 has come from a rather unlikely source: The Vatican of Rome. On June 18th, 2015, Pope Francis released his first encyclical, or papal letter, entitled "... more

Find us on

f

t

Tweets

Follow

ECCForum

@ECCForum

20h


IBM and NREL are developing free and better solar and wind forecasts for the continental US.

mashable.com/2015/07/21/wea...

pic.twitter.com/P072sUKXof

<https://www.eccforum.org/>

Adapting Climate Tools and Curriculum for Tribes



cake

Climate Adaptation Knowledge Exchange

<http://www.cakex.org>

UCAR

CENTER FOR SCIENCE EDUCATION

<http://scied.ucar.edu>

CASE STUDIES

VIRTUAL

HOME

TEACHERS

STUDENTS

LEARNING ZONE


VISIT NCAR


Adaptation Workbook

Build your own adaptation plan using your expertise, your judgment, and your land.

Use the Workbook

SEARCH CAKE





Climate-Eval

Sharing good practices on climate change and development evaluation

<https://www.climate-eval.org>

Alaska Native Knowledge Network

Resources for compiling and exchanging information related to Alaska Native knowledge systems

<http://ankn.uaf.edu>

Home

About ANKN

Publications

Academic Programs

Curriculum Resources

Calendar of Events

Announcements

Framework for Monitoring and Evaluation

By: Harris E. Sanahuja

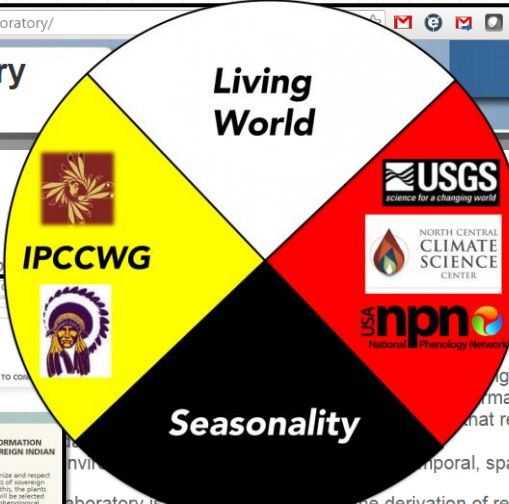
Study on Framework for Monitoring and Evaluation


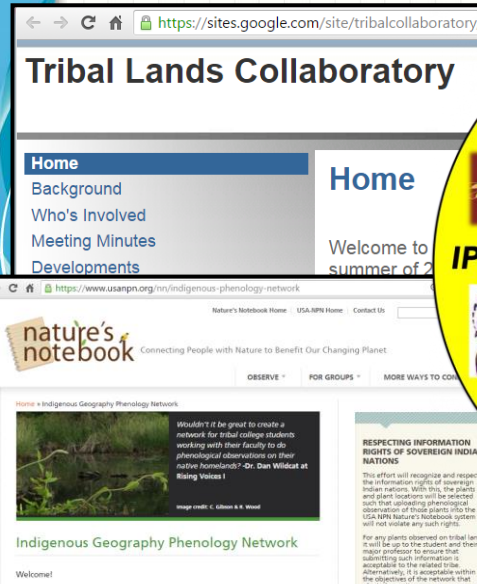
<http://www.usaid.gov/climate/>

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

36

Climate Tools Haskell Developing





TLC, NEON, Nature's Notebook, and other tools could link!

Citizen Science and Community Monitoring Programs



Welcome Guest [Login](#) [Register](#)

About Projects Maps Data Services

What's Being Measured



CitSci.org ~ Supporting the science you do!

188 projects

399,695 measurements

1,221 members

27,986 locations

759 protocols

Start a Project >

Benefits

Featured Project

New Observations

<http://citsci.org>

Citizen Science Association

A community of practice for the field of public participation in scientific research.

<http://citizenscienceassociation.org/>

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

37

USAjobs.gov > Resource Center > Students/Grads
includes BIA Pathways Student Opportunities

Home Search Jobs My Account Resource Center Support

USAJOBS
"WORKING FOR AMERICA"

Resource Center - Main Page

Supplemental Forms

Individuals with Disabilities

Veterans

Students and Recent Graduates

Search on GS-0499 in USAjobs for similar opportunities from USGS and other agencies

STUDENT TRAINEE (BIOLOGICAL SCIENCES), GS-0499-5/7

INTERIOR, BUREAU OF INDIAN AFFAIRS

Agency Contact Information

1 vacancy in the following location:
Location Negotiable After Selection, United States
Work Schedule is Full Time - Internships NTE YEAR
Opened Friday 3/11/2016
(19 day(s) ago)
Closes Friday 4/1/2016
(2 day(s) away)

Salary Range
\$32,318.00 to \$52,043.00 / Per Year

Who May Apply
INDIAN PREFERENCE ELIGIBLES / CURRENT

HOME WHO WE ARE BIA OTS NATURAL RESOURCES YOUTH PROGRAMS

NATURAL RESOURCES YOUTH AND PATHWAYS INTERNSHIP PROGRAMS



Indian Preference ensures Tribal Students considered first!

Grants.gov > SEARCH BOX > Tribal Student
includes a variety of opportunities students could assist with



HELP | MANAGE SUBSCRIPTIONS | REGISTER | LOGIN

SEARCH: Grant Opportunities tribal student GO

Search on Tribe, Student, etc. for grants.gov student, tribal, and institutional opportunities students might help support

GRANTS.GOV Search Grants

SEARCH GRANTS

BASIC SEARCH CRITERIA:
Keyword(s): tribal student
Opportunity Number:
CFDA:
SEARCH

OPPORTUNITY STATUS:
☒ Forecasted (17)
☒ Posted (305)
☐ Closed (848)
☐ Archived (14,053)
FUNDING INSTRUMENT TYPE:
☒ All Funding Instruments
☐ Cooperative Agreement (131)
☐ Grant (225)
☐ Other (14)
☐ Procurement Contract (12)

SORT BY: Relevance (Descending) Update Sort DATE RANGE: All Available Update Date Range

1 - 25 OF 322 MATCHING RESULTS: Previous 1 2 3 4 5 6 13 Next

Opportunity Number	Opportunity Title	Agency	Opportunity Status	Posted Date	Close Date
16-531	Tribal Colleges and Universities Program	NSF	Posted	01/13/2016	
NNH16ZHA0099N-ESTEEM-TCU	EONS 2016: Appendix E Earth System, Technology, and Energy Education for MUREP (ESTEEM) (Minority University Research and Education Project) for Tribal Colleges and Universities (TCU) NASA ESTEEM - TCU	NASA	Posted	10/06/2016	01/10/2017
NEAAC-ACBURGR-16-013	Student Leaders Program	DOS-NEA-AC	Posted	10/28/2016	12/09/2016
15-599	Innovative Technology Experiences for Students and Teachers	NSF	Posted	08/06/2015	08/09/2017
PAR-16-113	Maximizing Access to Research Careers Undergraduate - Student Training in Academic Research (MARC U-STAR) (T34)	HHS-NIH11	Posted	02/24/2016	05/25/2018
12-551	International Research Experiences for Students	NSF	Posted	04/09/2012	08/15/2017

Help your Tribe, TCU, or Academic Institution and yourself find grants!

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

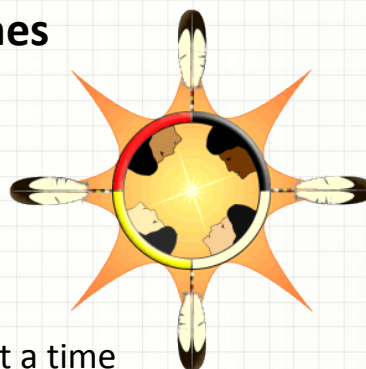
38

5. DISCUSSION *TALKING CIRCLE*



77

Talking Circle Guidelines



1. Introduce yourself
2. Only one person speaks at a time
3. Speak from the heart
4. Listen with respect: discreet cough too long, grunt to agree
5. What is said in the circle stays in the circle

From <http://www.muiniskw.org/pgCulture2c.htm> - Creative commons
And <http://www.bia.gov/cs/groups/xnifc/documents/text/idc1-021655.pdf>

78

Seven Generation Philosophy

Building Resilience for Future Generations


Onondaga Nation, Chief Oren Lyons

When you sit and you council for the welfare of the people, think not of yourself nor of your family nor even your generation. Make your decisions on behalf of the seventh generation coming. Those faces looking up from the earth, layer upon layer, waiting their time.

The Future is Looking to Us
Photo and Caption by Art Ivanhoff
Bearing Sea Alliance, LLC
<http://www.beringseaalliance.com>

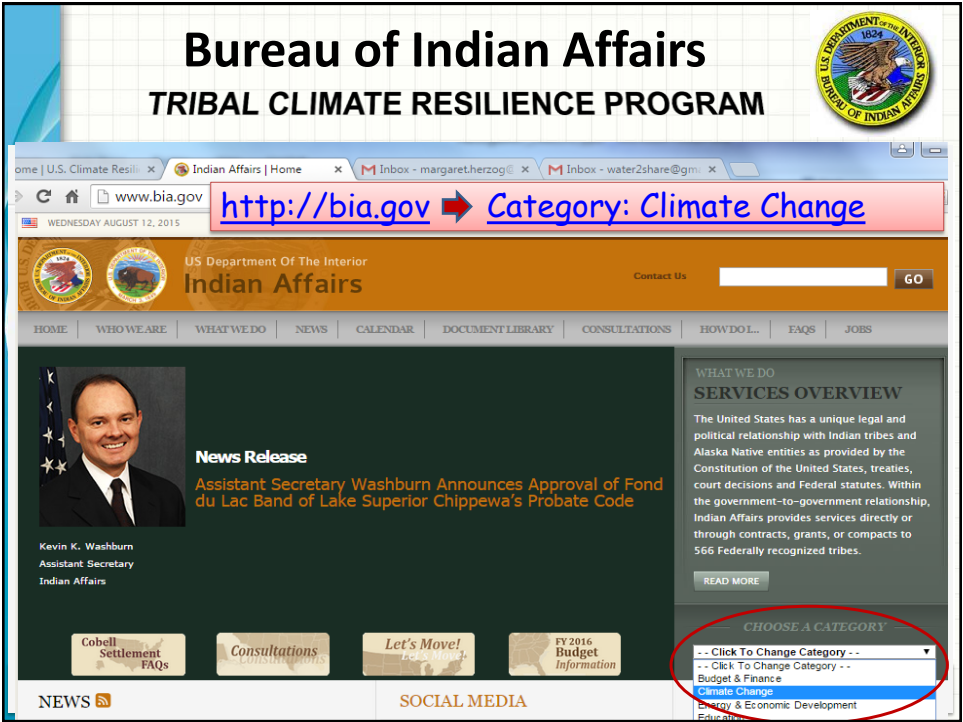
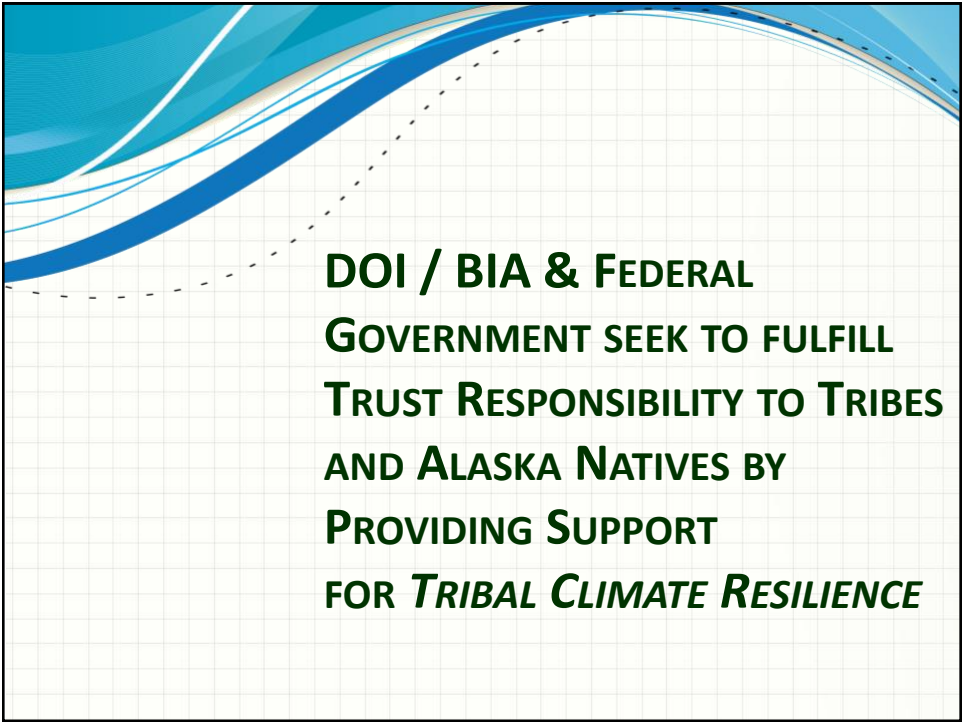
79

Quote from Lyons, O. April 2008. Oren Lyons: Looking Toward the Seventh Generation. Presentation, American Indian Studies Program, University of Arizona, Tucson, Arizona
<https://nnidatabase.org/db/video/oren-lyons-looking-toward-seventh-generation>



Supplementary Materials

BIA Tribal Climate Resilience Program
Tools and Services

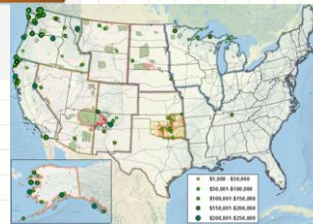


SELECT QUICK LINKS TO KEY RESOURCES



Contact Us / Provide Feedback

Support




83



84

Bureau of Indian Affairs

TRIBAL CLIMATE RESILIENCE PROGRAM



Program continues to expand! from 1 original Climate Coordinator

Rachael Novak became BIA first Climate Science Coordinator in DC in July 2015


Margaret Herzog, Denver, started February 2015 to build IT/GIS systems and services with Branch of Geospatial [BOGS support](#)

Three BIA Regional Climate Liaisons, Anchorage, AK
Corballis, OR, and Tuscon, AZ, and likely will start by end of year

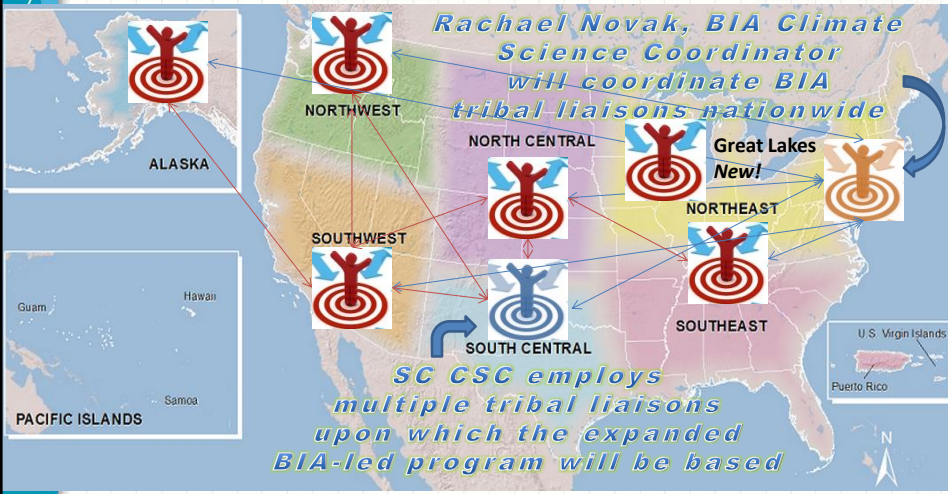
Three BIA Regional Climate Liaisons, for NC CSC, Midwest area, and NE/SE CSCs (BIA Eastern RO equivalent), will be selected shortly and likely start in early spring

Bureau of Indian Affairs

TRIBAL CLIMATE RESILIENCE PROGRAM




Six CSC tribal liaisons (in red) are being deployed soon!



Rachael Novak, BIA Climate Science Coordinator will coordinate BIA tribal liaisons nationwide


SC CSC employs multiple tribal liaisons upon which the expanded BIA-led program will be based



Bureau of Indian Affairs

Each RO has a designated climate contact

BIA Regional Offices, each includes a Regional Climate Contact!



Jarvis Gust, RM RO
jarvis.gust@bia.gov

Diane Mann-Klager, CPL RO
diane.mann-klager@bia.gov

David Redhorse, NW RO
david.redhorse@bia.gov

Matt Anderson, MID RO
matthew.anderson@bia.gov

Chip Lewis, WES RO
charles.lewis@bia.gov

Joe Jojola, SW RO
joseph.jojola@bia.gov

John Mosley, PAC RO
john.mosley@bia.gov


Crystal Keys, SPL RO
crystal.keys@bia.gov

Harrilene Yazzie, NAV RO
harrilene.yazzie@bia.gov

Michael Miley, EOK RO
michael.miley@bia.gov

Mark Kahklen, AK RO
Mark.Kahklen@bia.gov

Harold Peterson, EAS RO
harold.peterson@bia.gov

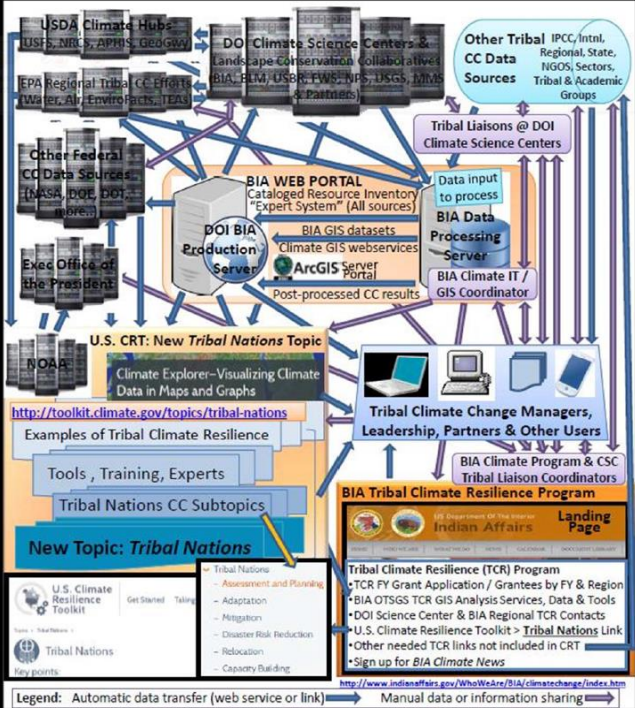


Bureau of Indian Affairs

Support to build TRIBAL CLIMATE RESILIENCE

- ✓ Resource Guidebook
- ✓ CRT Tribal Nations
- ✓ Data.Gov Tribal Nations
- ✓ TCR Website
- ✓ GIS Web Portal
- ✓ TCAP/VA Tech Support

Led by
Margaret T. Herzog, PE, PMP, PhD with 25 years of Intl, Federal, State, Watershed, and Local Govt. Experience



Legend: Automatic data transfer (web service or link) Manual data or information sharing

Bureau of Indian Affairs

Branch of Geospatial Services (BOGS)

FREE! ESRI GIS Licenses, Training, and Help Desk
(BIA.gov > Category: *Geospatial*)

ArcGIS Product List
The items in the ArcGIS [Product List](#) are available at no cost to approved applicants.
System requirements for ArcGIS for Desktop versions
Refer to [ESRI's System Requirements](#) for all versions of ArcGIS products.

How to Obtain GIS Software
New ELA members: Contact the [BOGS Help Desk](#) for the [BOGS ELA Application Form](#) and a New Order Packet. An ELA coordinator will help you with your application.

BOGS Geospatial Training
The **Geospatial Training Schedule** is available. The BOGS provides GIS training to BIA offices and employees of [Federally Recognized Tribes](#).

[BOGS Help Desk](#) 877.293.9494.


BOGS also assists Margaret in [BIA Tribal Climate Web Portal](#) development!

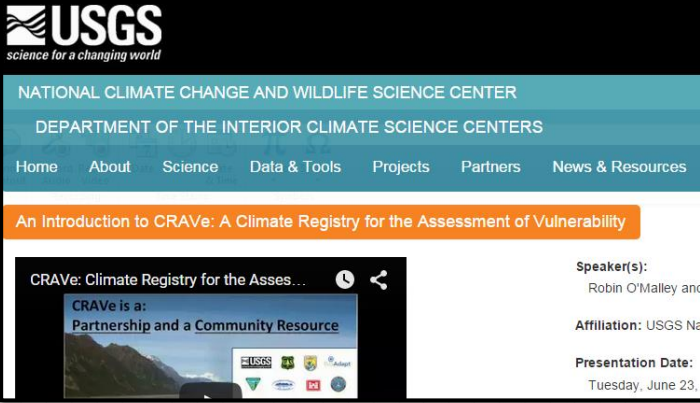
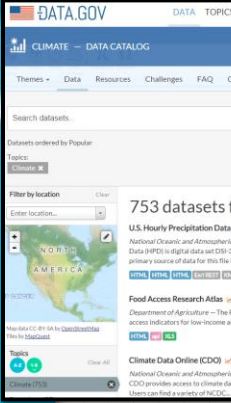


MORE SUPPORT! Bureau of Indian Affairs

TRIBAL CLIMATE RESILIENCE PROGRAM

Margaret can provide templates, climate data, resources, tools upon request to leverage awards and expand your support network





SCHEDULE IN-PERSON TODAY OR A WEBEX WITH MARGARET ON THE SIGN-UP SHEET (OR TCRP ONLINE FEEDBACK FORM) FOR LATER

BUREAU OF INDIAN AFFAIRS

TRIBAL CLIMATE RESILIENCE PROGRAM

HOMEPAGE

Visit <http://bia.gov>
Choose Category: *Climate Change*

Direct Link
<http://bia.gov/WhoWeAre/BIA/climatechange/>

CLIMATE CHANGE / TRIBAL CLIMATE RESILIENCE PROGRAM


The BIA Tribal Climate Resilience Program (TCRP) goal is the mainstreaming of climate considerations at the agency level through leadership engagement, sharing of data and tools, training and other capacity building, direct funding support, risk assessment, and advanced risk management plans for climate resilience through competitive awards for tribally designed climate resiliency, adaptation planning, conservation conservation, environmental monitoring, capacity building, and public engagement. The vision and mission management effort supports planning, science and tools, and capacity for tribal climate resilience management. Climate and coastal program lead and address only climate related concerns.

Maximizing climate change considerations into all Bureau of Indian Affairs (BIA) activities, and supporting climate resiliency initiatives to be the state, is a high priority for the administration and the Department of the Interior (DOI). Climate change will bring new challenges to Indian Country and Alaska Native Village. The President's Climate Action Plan identified the BIA as the best agency to support tribes as they address this challenge.

SELECT: Program Overview Tribal Climate Resilience Resource Guide - Overview ("Tool")
TOOL: Tribal Nations Page (Grid) Tribal Nations Page (Data) Awards Map
SELECT: BIA Tribal Climate Resilience Program Tribal Climate Resilience Program
TOPIC: BIA Regional Climate Resilience Plan Tribal Climate Resilience Plan

Bureau of Indian Affairs

TRIBAL CLIMATE RESILIENCE PROGRAM



ome | U.S. Climate Resili... x Indian Affairs | Home x M Inbox - margaret.herzog@ x M Inbox - water2share@gm... x


<http://bia.gov> [http://bia.gov](#) [Category: Climate Change](#)

WEDNESDAY AUGUST 12, 2015

U.S. Department Of The Interior
Indian Affairs

Contact Us GO

HOME WHO WE ARE WHAT WE DO NEWS CALENDAR DOCUMENT LIBRARY CONSULTATIONS HOWDO... FAQs JOBS



News Release

Assistant Secretary Washburn Announces Approval of Fond du Lac Band of Lake Superior Chippewa's Probate Code

Kevin K. Washburn
Assistant Secretary
Indian Affairs

WHAT WE DO

SERVICES OVERVIEW

The United States has a unique legal and political relationship with Indian tribes and Alaska Native entities as provided by the Constitution of the United States, treaties, court decisions and Federal statutes. Within the government-to-government relationship, Indian Affairs provides services directly or through contracts, grants, or compacts to 566 Federally recognized tribes.

READ MORE

Cobell Settlement FAQs

Consultations

Let's Move!

FY 2016 Budget Information

NEWS

SOCIAL MEDIA

CHOOSE A CATEGORY

Click To Change Category

Click To Change Category

Budget & Finance

Climate Change

Energy & Economic Development

Education


Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

46

Bureau of Indian Affairs

TRIBAL CLIMATE RESILIENCE PROGRAM

HOMEPAGE



- Select Tool
- Select Topic
- Region Links
- Agency Links
- Intertribal Links
- Climate Funding
- Photo Contest
- Liaisons
- Feedback / Subscribe

HOME • WHO WE ARE • BIA • CLIMATE CHANGE
CHOOSE A CATEGORY

CLIMATE CHANGE / TRIBAL CLIMATE RESILIENCE PROGRAM
-- Click To Change Category --

The BIA Tribal Climate Resilience Program (TCRP) goal is the mainstreaming of climate considerations at the project level through leadership engagement, delivery of data and tools, training and tribal capacity building. Direct funding supports tribes, tribal consortia, and authorized tribal organizations to plan for climate resilience through competitive awards for tribally designed climate training, adaptation planning, vulnerability assessments, supplemental monitoring, capacity building, and youth engagement. The ocean and coastal management effort supports planning, science and tools, and capacity for coastal tribe's ocean management. Ocean and coastal proposals need not address only climate related concerns.

Mainstreaming climate change considerations into all Bureau of Indian Affairs (BIA) activities, and supporting federally-recognized Tribal Nations to do the same, is a high priority for the administration and the Department of the Interior (DOI). Climate change will bring new challenges to Indian Country and Alaska Native Villages. The President's Climate Action Plan identified the BIA as the lead agency to support tribes as they address this challenge.





SELECT Program Brochure Tribal Climate Resilience Resource Guide - Overview ("Tool")

TOOL: Tribal Nations Topic (Toolkit) Tribal Nations Maps (Data.gov) Awards Map

SELECT K-12 Student Photo Contest FY16 Climate Awards Quick Climate Links

TOPIC: BIA Regional Climate Liaisons Past Years Climate Awards [Subscribe / Help](#)

Fall 2016 / Spring 2017 K-12 BIA/BIE TRIBAL STUDENT CLIMATE CHANGE PHOTO CONTEST - Past Contest Winners and 2016 Summer Photos Entries


DUE: November 30th (2016 Fall Contest) / April 28th (2017 Spring Contest)

- For K-12 Students! Tribal Climate Change Photo Contest Instructions (PDF)
- For Instructors and Mentors! Additional Contest and Climate Lesson Plan Guide (PDF)

Using a classroom or cell phone camera, take a picture of something you value in your tribal community that climate change might affect. Include a caption describing the climate impact (and what might be done about it). Submit all captioned photos or questions by e-mail to: bia_climate_photo_contest@bia.gov or by teacher's class instructions. Categories: K-5, 6-8, 9-12

- 2015 Summer and Fall Tribal Student Photo Contest Award Winners (pdf)
- 2016 Spring Photo Contest Award Winners (pdf) - Includes all entries, winners marked
- 2016 Summer Photo Contest Award Winners (pdf) - Includes all entries, winners marked

Click the map to view our regions and their office contact information and the tribes served by that region



CLIMATE CHANGE BY REGION


- ▶ Regional Fact Sheets
- ▶ Tribal Fact Sheets
- ▶ BIA Regional Climate POCs
- ▶ Navajo RO Climate Page
- ▶ Pacific RO Climate Page

FEDERAL RESOURCES

- ▶ Agency Fact Sheets
- ▶ Executive Order 13653
- ▶ Climate Action Plan
- ▶ Climate Change Indicators
- ▶ National Climate Assessment
- ▶ Climate Resilience Toolkit
- ▶ Climate Data and Maps
- ▶ Climate Adaptation Strategy
- ▶ DOI Climate Science Centers
- ▶ DOI Landscape Cooperatives
- ▶ EPA Climate Change
- ▶ EPA Tribal Portal

Bureau of Indian Affairs

TRIBAL CLIMATE RESILIENCE PROGRAM



Current FY Climate Funding – Review last year's kit to prepare to apply! See past awards

FY 2016 Tribal Climate Resilience Program Awards
Adaptation & Ocean/Coastal Planning, Travel Support, Youth Funding, and Capacity Building

- [FY16 BIA TCRP Awards Summary \(pdf\)](#)
- [Indian Affairs FY16 BIA TCRP Awards Press Release \(pdf\)](#)

Awards Announced 8/24/16: The Bureau of Indian Affairs announced **funding of more than \$8.6M** to federally-recognized Tribes and Alaska Native communities for tribal climate change adaptation and capacity building, ocean and coastal management planning, and youth climate opportunities. Award/no-award letters were sent to tribal leaders with an email copy to original submitters in early August 2016. For an awards listing, please see the [FY16 BIA TCRP Awards Summary](#).

If you have questions or feedback about the proposal or review process, please submit it by email to climate.funding@bia.gov.

ORIGINAL FY16 SOLICITATION RESOURCES (Archive)

- [FY16 Application Kit \(pdf\)](#) - Notice of Funding (proposal requirements)
- [\[Optional\] Proposal Cover Sheet \(fillable pdf\)](#) - to aid in correct filing!
- [Original FY16 Funding Announcement Letter sent to Tribal Leaders \(pdf\)](#)
- [Indian Affairs Climate Funding News Release posted 3/23/16 \(pdf\)](#)
- [BIA Regional Climate Contacts \(pdf\)](#)
- [Overview Webinar with Q&A \(YouTube\)](#) - Download slides (pdf)

Steps for Winning an Award

- Obtain Climate Adaptation Training
- Attend Tribal Networking Meetings
- Review Climate Adaptation Plans
- Select an appropriate model with community input
- Discuss climate issues and emphasis with community and all other departments
- Find agency, inter-tribal, and local & state partners
- Associate with academic institution, non-profit, and / or private / public climate adaptation consultant
- Hire Climate Coordinator and volunteer support
- Continually work with all stakeholders as move forward

95

Tips for Winning an Award

- Include short, alluring executive summary
- List a variety of partners
- Leverage other agency and group funds
- Provide Tribal Cost share
- Don't ask for maximum limit, if can do it for less, think about an interative process, so just year-by-year need
- Detail budget and cost share for all items same sheet
- Make schedule and milestones clear
- List work products - an adaptation plan, vulnerability assessment, datasets, maps, etc.
- Provide resumes and letters of support
- Focus on community capacity building, not research

96

BIA Climate Program Highlights

- Federal agencies will work to improve coordinated tribal support
- BIA is the designated federal lead agency to support tribes
- **BIA Climate Coordinator** position is currently vacant
- BIA Climate Website, News, Portal, Services, Network Expanding
- BIA placing tribal liaisons in DOI Climate Science Centers (CSCs)
- Join! Your DOI Landscape Conservation Cooperatives (LCCs) and Free! TCUs may join Cooperative Ecosystem Studies Units
- **Join!** BIA Climate News to know when to
APPLY! for FY17 Climate Funding

Contact Margaret.Herzog@bia.gov (720) 484-3353 to schedule a WebEx for climate tools, resources, or mapping / modeling needs

97

Applying Indigenuity

We have a lot to benefit from by honoring the tribal view that we are not in control, none of us know it all, and that as human beings, we are a product of a long-standing relationship between people and place

- incorporate diverse cultures and tribal identities into projects that emerge from a symbiotic relationship with, not in opposition to, nature
- tap into roots, move outside the conceptual boxes to re-situate technology in a different environmental framework while we all “bring our ‘minds’ together

From <http://www.boulder.noaa.gov/news-040716> based on
NASA ESRL March 2016 Presentation by Professor Wildcat, Haskell Env Prog

98

TRIBAL CLIMATE RESILIENCE RESOURCE GUIDE

Tribal Climate Resilience Resources

<http://toolkit.climate.gov/tribal>

Tribal Climate Fact Sheet

Your dashboard to Resources!

Agency Support
• Blue - Agency Fact Sheet
• Orange - Regional Agency Link

Names (Federal Register): Navajo Nation, Arizona, New Mexico & Utah

Federal Links: Select the Agency Acronym (blue link) for an Agency Fact Sheet and the orange link to its right for regional contact information or homepage. For more information, hover over a link for agency or program details before making a selection.

Agency	Region	Link Type
USDA Climate Hub	Southwest	Agency Fact Sheet
EPA	RS	Regional Agency Link
FWS	Southwest	Agency Fact Sheet
NOAA	Region, RISA, CLIMAS	Regional Agency Link
DOT/FHWA	Mountain West	Regional Agency Link

Awards

- FY11 Climate Adaptation Planning
- FY15 Management Internships
- FY15 Tribal (Climate)
- FY15 Youth Engagement
- FY15 Climate Adaptation Planning
- FY15 Tribal (Climate)
- New Climate Funding Options

Documents

- Connectivity of Habitats on Navajo Nation Lands
- Conservation Planning Atlas
- Conservation Planning Atlas
- Conservation Planning Atlas
- Conservation Planning Atlas
- Conservation Planning Atlas

Examples

- DOT Case Study: Navajo Nation Historic Dineh Climate Plan: Sand Dunes on the Move
- TEEP TCC Profile: Dineh Study Offers Clues to Climate Change
- Other Tribal Nations Examples

Tools

- Total Climate Change Assessment: Assessment and Planning (TCR MAP)
- TCR Tool: Guidelines for Considering Traditional Knowledge in Climate Change Initiatives
- TCR Tool: Tribal Climate Change Adaptation Planning Toolkit
- TCR Tool: Tribal Climate Change Adaptation Planning Toolkit
- Other Recommended Climate Tools
- Native One Stop: Federal Programs

Data & Maps

- Conservation Planning Atlas
- HUCs: 1000013 - Poudre Wash Watershed
- TCR Tool: Tribal Climate Change Adaptation Planning Toolkit
- TCR Tool: Tribal Climate Change Adaptation Planning Toolkit
- TCR Tool: Tribal Climate Change Adaptation Planning Toolkit

Groups

- Dine College
- Navajo Technical College

Find Regional Partners & TCUs

- Dine College
- Navajo Technical College

Request Personal Tour!

Contact Us / Provide Feedback

TRIBAL NATIONS IN AGENCY-WIDE FEDERAL SYSTEMS LINKED TOGETHER THROUGH THE TCR RG

<http://www.data.gov/climate/tribal-nations>

<http://toolkit.climate.gov/topics/tribal-nations>

U.S. Climate Resilience Toolkit

Get Started | Taking Action | Tools | Topics

About | Contact | Funding Opportunities | FAQ | Search

Topics > Tribal Nations

Tribal Nations

Key points:

- Climate change impacts are projected to be especially severe for many of the 567 federally recognized tribes in the United States that depend on traditional places, foods, and lifestyles.

<http://toolkit.climate.gov/topics/tribal-nations>

Tribal Climate Resilience Resources

<http://toolkit.climate.gov/tribal>

Start at the TCR Resource Guide (Landing Page)

<http://toolkit.climate.gov/tribal>

Tribal Climate Resilience Resources

TRAINING

PLANNING

FUNDING

AGENCIES

REGIONS

TRIBES

TKS / TEK

YOUTH

From the [Tribal Climate Resilience Resource Guide Landing Page](#), select one of the eight topics (circles) to explore resources. Choose [Agencies](#), [Regions](#), or [Tribes](#) to visit specific listings or choose a topical webpage: [Youth](#), [Funding](#), [Training](#), [Planning](#), or [Traditional Knowledges \(TKs\) / Traditional Ecological Knowledge \(TEK\)](#).

TRIBES

1) Choose TRIBES icon

2) Jump to Tribe by entering 3-4 distinct letters from Tribe Name in Quick Filter

QUICK FILTER - jumps as you type shiv

Tribal Climate Change Resources

Tribes

TCUs

Intertribal Groups

Tribes

Show 100 entries

Tribes	BIA Region	State	Fact Sheet
Paiute Indian Tribe of Utah (Cedar, Kanosh, Koosharem, Indian Peaks, & Shivwits)	Western Region	Utah	Fact Sheet

Showing 1 to 1 of 1 entries (filtered from 577 total entries)

3) Choose Tribal Fact Sheet of Interest

Names (Federal Register): Paiute Indian Tribe of Utah (Cedar Band of Paiutes, Kanosh Band of Paiutes, Koosharem Band of Paiutes, Indian Peaks Band of Paiutes, and Shivwits Band of Paiutes)

Federal Links: Select the Agency Acronym (blue link) for an Agency Fact Sheet and the orange link to its right for regional contacts or homepage. For more information, hover over a link for agency or program details before making a selection.

Tribal: Official Website (or groupsite)

BIA Region: Western Regional Fact Sheet

DOE: UT

CSC: Southwest

LCC: Southern Rockies

FWS: Mountain Prairie

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

51

Tribal Climate Fact Sheet

Your dashboard to Resources!

Agency Support

- Blue - Agency Fact Sheet
- Orange – Regional Agency Link

Names (Federal Register): Navajo Nation, Arizona, New Mexico & Utah

Federal Links: Select the Agency Acronym (blue link) for an Agency Fact Sheet and the orange link to its right for regional contact or homepage.
For more information, hover over a link for agency or program details before making a selection.

Tribal: [Official Website \(or groupsite\)](#)

BIA Region: Navajo Regional Fact Sheet

DOE: AZ

CSC: Southwest

LCC: Southern Rockies

FWS: Southwest

USDA CLIMATE HUB: Southwest

USDA NRCS: Locator, USDA USFS: Southwestern

NOAA: Region, RISA: CLIMAS

EPA: R9

FEMA: R9

DOT/FWHA: Mountain West

HUD: Southwest

Awards

- FY11 Climate Adaptation Planning
- FY15 Management Internships
- FY15 Travel (Climate)
- FY15 Youth Engagement
- FY16 Climate Adaptation Planning
- FY16 Travel (Climate)
- More Climate Funding Options

Documents

Share Results!

- Connectivity of Habitats on Navajo Nation Lands
- SR LCC Result!
- Considerations for Climate Change and Variability Adaptation on the Navajo Nation
- NN CC Vulnerability Assessment for Priority Wildlife Species

Examples

- CRT Case Study: Navajo Nation: Hotter, Drier Climate Puts Sand Dunes on the Move
- ITEP TCC Profile: Dune Study Offers Clues to Climate Change
- Other Tribal Nations Examples

Groups

Find Regional Partners & TCUs!

- Dine College
- Navajo Technical College

Request Personal Tour!

Contact Us / Provide Feedback

Tools

- Tribal Drought Information for Monitoring, Assessment, and Planning (DRI MAP)
- CRT Tool: Guidelines for Considering Traditional Knowledges in Climate Change Initiatives
- CRT Tool: Tribal Climate Change Guide
- CRT Tool: Tribal Climate Change Adaptation Planning Toolkit
- Other Recommended Climate Tools
- Native One Stop: Federal Programs

Data & Maps

LCC Atlas

- Conservation Planning Atlas
- HUC8: 15020013 - Polacca Wash Resource Links
- NN Zoo: Facts on Desert Bighorn Sheep and Other Species
- Tribal Nations Geospatial Data
- Tribal Nations Map Gallery

Climate Data Links

From Agency Section of Tribal Fact Sheet

Jump to Agency Fact Sheet (blue link)–LCCs

Federal Links: Tribal Climate Resilience Resources - AGENCY CLIMATE RESOURCES

LCC(s): Southern Rockies

Landscape Conservation Cooperatives (LCCs) FACT SHEET

Orientation

Landscape Conservation Cooperatives (LCCs) help Tribal Nations build connections with partners to tackle large-scale and long-term conservation challenges.

Services

- CA LCC Tribal Team
- GB LCC: Tribal Resources
- Landscape Conservation Cooperatives (LCCs)
- LCC Council Tribal Representatives
- LCC News
- Partners With National Fish Habitat Partnership
- SR LCC Tribal Steering Committee Members

Funding

- LCC Funding Opportunities (+ Join One To Coproduce Projects)
- TCCG - Possible LCC Funding Opportunities

Training

- CA LCC: Webinar Recordings
- Evaluating Scenario Planning To Understand Climate Change
- GB LCC: Sagebrush Ecosystem Conservation
- GN LCC: ITEP TCCAP Course April 2016

Products

- Arctic LCC Maps & Datasets
- Desert LCC Conservation Planning Atlas
- LCC Network Conservation Science Plan (2015)
- NCA3 Sectors: Landuse And Land Cover Change
- NP LCC S-TEK Strategy Documents
- Presentations & Posters
- Regional LCC Annual Reports

Tools

- CRT Tool Partner For: Coastal Change Analyses For Western Alaska: Interactive Map
- CRT Tool Partner For: Guidelines For Considering Traditional Knowledges In Climate Change Initiatives
- CRT Tool Partner For: Indigenous Health Indicators Tool
- CRT Tool Partner For: Local Environmental Observer (LEO) Network
- CRT Tool Partner For: National Fish, Wildlife, And Plants Climate Adaptation Strategy
- CRT Tool Partner For: Tribal Climate Change Guide
- Find My Landscape Conservation Cooperative
- LCC Nationwide Project Search

Examples

- CRT Partner On: Assessing The Timing And Extent Of Coastal Change In Western Alaska
- CRT Partner On: Confederated Salish And Kootenai Tribes: Applying The Values Taught By Our Ancestors
- CRT Partner On: The Swinomish Indian Tribal Community Prepares For Climate Change Impacts
- GN LCC: Connecting Tribal And First Nation Adaptive Management And Climate Related Activities In The Crown Of The Continent

NFWPCAS excellent CAP Resource to Enhance Species!

Great overview of a variety of Tribes & Climate resources from each Agency Selected to Explore!

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

52

Agency Fact Sheet: Example - NOAA

Tribal Climate Resilience Resources - AGENCY CLIMATE RESOURCES
National Oceanic and Atmospheric Administration (NOAA) FACT SHEET

Orientation

NOAA works with a variety of Tribal Nations and Organizations on a diverse array of marine and coastal concerns. Regional Centers also provide climate trends and weather forecasts nationwide.

Services

- AASC Climate Service Catalog (Partner)
- NOAA At National Weather Service (NWS)
- National Integrated Drought Information System (NIDIS)
- NOAA Climate Gov Dashboard, News, Maps, Support
- NOAA Fisheries Tribal Consultation In Alaska
- NOAA Regional Climate Centers
- NOAA National Integrated Science And Assessment Programs (NISAP)
- Tribal Relations News And Links (Inter-Agency)

Funding

- 2015 NOAA Climate Program Office Funding
- NOAA And Other Grants (Federal-Wide Options)
- NOAA Coastal Funding Opportunities
- NOAA Sea Grant Programs (Zoom Out For Alaska)
- NOAA Species Recovery Grants To Tribes
- TCCG - Possible NOAA Funding Opportunities

Training

- Inter-Tribal Youth Climate Leadership Congress
- NCAR GLOBE Education Programs (Partner)
- Next Generation Climate Curriculum
- NOAA West Tribal Portal Staff Training Links
- NWS Climate Services Seminar Series
- SCIPP SPL Youtube Video Training Archive
- Subscribel NOAA Climate Stewards Webinars Alerts
- Teaching Climate

Products

- Alaska ACCAP Select Projects (OA, SNA, Coastal Change, More...)
- NANN Decision Support Tools (ArkStorm, Drought, Downscaling, Data Archive, GB Dashboard)
- Climate Assessment For The Southwest Phase III Report
- Climate Information (NCEI)
- El Niño & La Niña (ENISO)
- National Drought Overview (NCEI)
- Poster! 10 Signs Of A Warming World
- Socioeconomics And Climate Change In The Great Lakes Region
- Tribal Resource Guide To U.S. Dept. Of Commerce (Partner)
- Western Water Assessment Decision Support Tools (Climate Dashboard, CRAIG, TreeFlow)

Tools

- Climate Data Access (NCEI)
- CRT Partner On: NSIDC Atlas Of The Cryosphere
- CRT Tool Partner For: Atlas Of Community-Based Monitoring And Traditional Knowledge In A Changing Arctic
- CRT Tool Partner For: Climate-Smart Conservation: Putting Adaptation Principles Into Practice
- CRT Tool Partner For: G-WOW Guiding For Tomorrow: Changing Climate, Changing Culture
- CRT Tool Partner For: Ocean Acidification Curriculum Collection
- CRT Tool Partner For: U.S. Drought Portal
- Lead On: Synthesis Of Arctic Research (SOAR)
- Partner On: Community Collaborative Rain, Hail And Snow Network (CoCoRaHS)
- Partner On: Rutgers Global Snow Lab
- U.S. Climate At A Glance (NCEI)
- U.S. Climate Resilience Toolkit (Tribal Nations Topic)

Examples

- CRT Partner On: Alaskan Tribes Join Together To Monitor Harmful Algal Blooms
- CRT Partner On: Assessing The Timing And Extent Of Coastal Change In Western Alaska
- CRT Partner On: Jamestown S'Klallam Tribe Plans For Change On The Olympic Peninsula
- CRT Partner On: Looking To The Future On Alaska's North Slope
- CRT Partner On: Preparing To Respond To Oil Spills In The Arctic
- CRT Partner On: Sugiuphih Ocean Acidification Curriculum Collection
- SOAR Lead On: Alaska's Fisheries And Communities At Risk From Ocean Acidification

Each Agency Fact Sheet lists Resources and [Tools & Cases](#) from CRT [Tribal Nations](#) that the Agency developed with Tribes, as well as Funding, Training, Services, and Products that support *either* TRIBES and/or CLIMATE in a *consistent layout* in one unified source.

Agency Fact Sheet: *Example - EPA*

Tribal Climate Resilience Resources - AGENCY CLIMATE RESOURCES

Environmental Protection Agency (EPA) FACT SHEET

Orientation

EPA provides Consultation and Coordination with Tribes and Tribal Groups throughout all its Environmental Programs to protect air, water, and Tribal lands, and to prevent chemical and solid wastes from polluting the environment.

Services

- All Tribal Programs + Regional Contacts
- Consultation And Coordination
- Protecting And Preserving Tribal Lands
- Safe Drinking Water On Tribal Lands
- Tribal Air & Climate Resources
- Tribal Climate And Energy Information
- Tribal Science Council

Funding

- Drinking Water Infrastructure Set Aside Program
- General Assistance Program
- Tribal Air Grants Framework
- Tribal EcoAmbassadors
- Tribal Funding By Topic
- Tribal Nonpoint Source Grants (CWA Section 319)
- Tribal Water Pollution Control Grants (CWA Section 105)
- Wastewater Infrastructure Set Aside Program
- Wetland Program Development Grants

Training

- Air Quality Training
- Climate Events
- Grant Application Process
- Solid Waste Tribal Ed And Assistance
- Understanding Climate Change Impacts On Water Resources

Products

- Clean Power Plan
- Climate Change Indicators In The United States
- Climate Ready Estuaries & Coastal Adaptation
- EPA Climate Adaptation Planning
- Impacts And Adaptation By Region
- Laws, Regulations, And Compliance Governing AIAN Sectors
- Resources For Climate Change Research

Tools

- Adaptation Resource Center (ARC-X)
- Climate Change And Water Tools
- CREAT Climate Scenarios Projection Map
- CRT Tool Partner For: Climate-Smart Conservation Guide
- CRT Tool Partner For: Indigenous Health Indicators Tool
- CRT Tool Partner For: Local Environmental Observer (LEO) Network
- CRT Tool Partner For: Ocean Acidification Curriculum Collection
- CRT Tool Partner For: Tribal Climate Change Guide
- CRT Tool: Tribal FERST - Environmental Risk Management
- CRT Tool: Climate Resilience Evaluation & Awareness Tool (CREAT)
- CRT Tool: Risk-Based Adaptation Planning Workbook
- Green Building Tools For Tribes
- Greenhouse Gas Reduction Calculator

Examples

- Climate Showcase Communities Program
- CRT Partner On: Addressing Links Between Climate And Public Health In Alaska Native Villages
- CRT Partner On: Alaskan Tribes Join Together To Monitor Harmful Algal Blooms
- CRT Partner On: Iñupiaq Work To Preserve Food And Traditions On Alaska's North Slope
- CRT Partner On: Jamestown S'Klallam Tribe Plans For Change On The Olympic Peninsula
- CRT Partner On: Relocating Kivalina
- CRT Partner On: Sugamish, Ocean Acidification Curriculum Collection
- CRT Partner On: The Samnash Indian Tribal Community Prepares For Climate Change Impacts
- CRT Partner On: Yukon Delta Villages Document Baseline Environmental Data
- Support For Tribal Spotlight - Indoor Air Quality Programs

EPA funding by mission area, new ARC-X Adaptation Resource Center and Examples of Continual, Expanding work with Tribes

New Tools for addressing W/WW infrastructure and other climate concern with CREAT Tool

TCR Resource Guide Listing Pages – 2. Regions

Alaska Region | Eastern Region | Eastern Oklahoma Region | Great Plains Region | Midwest Region | Navajo Region
Northwest Region | Rocky Mountain Region | Pacific Region | Southern Plains Region | Southwest Region | Western Region

Regions

Alaska Region

Tribal Climate Resilience Resources

BIA Regions

About

Contact Us / Provide Feedback

To provide more site-specific information, resources are also organized by BIA region, since each Tribe in the U.S. is associated with a BIA service area. Select the region for your tribe to access federal-wide support for that area of interest.

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

54

UNM IEP Session #2: *Tribes & Climate*
Monday, 11/14/16 5PM-5PM

Jump to BIA Region Fact Sheet – PAC Example

BIA Region: Pacific Regional Fact Sheet
Pacific Regional Office

Tribal Climate Resilience Resources - REGIONAL CLIMATE RESOURCES
PACIFIC REGION (PAC RO) FACT SHEET

Description of Region:

The BIA Pacific Regional Office is committed to supporting the 104 federally recognized Tribes in California within its jurisdiction to address new challenges presented by the current rate of global climate change. The diverse missions of all branches of the BIA that have joined together to address climate change are the strength of the Pacific Region strategy. In addition to resources presented here, the Region will utilize its network of partners and tribal contacts to disseminate climate change information to Tribes within the Region.

Federal Links: Select the Agency Acronym for the full Agency Fact Sheet and the link to its right for a more specific regional contact or homepage. Choose Affiliated Tribal Fact Sheets to access a Fact Sheet for each Tribe in this Region.

BIA Pacific - Affiliated Tribal Fact Sheets BOEM: Pacific OCS Regions EPA: R9 USDA CLIMATE HUB: Southwest CSC: Northwest	DOT/FHWA: Western BLM: CA FEMA: R9 USDA NRCS: Locator, USDA USFS: Pacific Southwest LCC(s): California Desert North Pacific	DOE: CA FWS: Pacific Southwest HUD: Southwest NOAA: Region, RISA: CNAP
---	---	--

Services

- CA Indian Legal Services
- CA State Climate Change Adaptation
- CA State Tribal Advisor By Dept.
- CA Tribal Temp. Asst. For Needy Families
- Tribal Climate Resilience Program (BIA)
- Tribal Government Climate Support (EPA)
- NIDIS Tribal Engagement (Drought/Poll)
- Native One Stop Resource Finder

Funding

- Tribal Funding By Strategy
- Other Funding Opportunities (TCCG) - Choose Geography: SW And Any

Tools

- Cal-Adapt Climate Tools And Data Access
- California LCC Climate Commons
- Central And N. CA Ocean Observing System
- NOAA: Western Regional Climate Center Analysis
- CRT Tool: Guidelines For Considering Traditional Knowledge In Climate Change Initiatives
- CRT Tool: Tribal Climate Change Guide (TCCG)

Products

- CA Adaptation Planning Guide (2012)
- CA Invasive Plant Council Herbicide BMPs
- EPA: Climate Impacts In The Southwest
- NCA Regions: Southwest Climate Assessment
- Traditional Ecological Knowledge (TEK) Resources
- Tribal Nations Theme In Climate Data Initiative

Select Pacific-area Federal Resources or access area Tribal Fact Sheets to compare

Contact Us / Provide Feedback

Contact Us / Provide Feedback

Expanded! Tribal Climate Change Resource Guide
<http://tribalclimateguide.uoregon.edu/> or CRT TOOL!

O UNIVERSITY OF OREGON

Tribal Climate Change Guide

The Tribal Climate Change Guide is part of the Pacific Northwest Climate Change Resource Guide, launched in November 2015 and is a beta version of our new online guide.

Funding Adaptation Plans Climate Programs Climate Tools

Tribal Climate Change Guide
 Tribal, First Nation, and Alaska Native communities—along with federal, academic, and industry partners—are still working on adding content to this web-based clearinghouse to access a broad range of climate resources.

Funding

The Tribal Climate Change Funding Guide is intended to provide up-to-date information on grants, programs and plans that may assist tribes with funding questions or updates for this guide, email: kathy@uoregon.edu.

Search by Keyword **Geography**

- Any -

Title	Organization	Grant Deadline	Description
NOAA 2016 Coral Reef Conservation Program International Coral Reef Conservation Cooperative Agreements	NOAA (National Oceanic and Atmospheric Administration)	11/19/2015	The NOAA Coral Reef Conservation Program (CRCP) provides matching grants for international coral reef conservation projects that will support the NOAA Coral Reef Conservation Program's International Strategy. The International Strategy focuses on supporting existing regional efforts in four priority regions: the Caribbean, the Pacific, the Indian Ocean, and the Red Sea. Two of these four priority regions will have Opportunity: the Wider Caribbean and Micronesia. In FY 2016, the CRCP will accept applications for two-year project period focused on building international capacity for the effective ecosystem management of coral reefs.

Access the TCCG from ANY Tribal Fact Sheet Funding or Tool section!

55

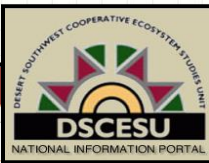
Tribal College Fact Sheets - SIPI

Southwestern Indian Polytechnic Institute

Tribal College or University: *Southwestern Indian Polytechnic Institute*

TCU: Website AIHEC: TCU Profile Related Programs: Technical Ed Youth: More Resources

CESU: DESERT SOUTHWEST



Awards

Affiliated Tribes

- Pueblo of Nambe
- Pueblo of Tesuque
- Kewa Pueblo
- Pueblo of Acoma
- Pueblo of Cochiti
- Pueblo of Isleta
- Pueblo of Jemez
- Pueblo of Laguna
- Pueblo of Zia
- Pueblo of Picuris
- Pueblo of Pojoaque
- Pueblo of Taos
- Pueblo of San Felipe
- Pueblo of San Ildefonso
- Pueblo of Sandia
- Pueblo of Santa Ana
- Pueblo of Santa Clara

Jump from TCU Fact Sheet to area Tribes Fact Sheets and back!

Documents

Tools

Examples

- Monitoring Change: SIPI students engage in long-term ecological research
- Climate Change Working Group Meets at SIPI

Tribal Climate Resilience Resources Youth and Climate

Orientation

Tribal Youth are increasingly impacted as their families and communities attempt to sustain tribal lifeways in the face of climate disruptions. Climate change curriculum, educational groups, internships, and programs may help Tribal Youth gain a sense of empowerment to address climate challenges.

Tribal Youth, Education, and Climate Groups

- Bureau of Indian Affairs Tribal Climate Resilience Program
- Bureau of Indian Education

Tribal Student Climate and STEM Career Funding

- NASA Tribal College and University ELO Program Internships

Tribal Climate Curriculum

- Guidelines for Considering Traditional Knowledge in Climate Change Initiatives
- National Climate Assessment, C.12

TCU pages include the website, AIHEC listing with contacts, link to **Youth Resources Page**, Tribes, Link to 1 or more CESU to join for discounts & support

Intertribal Fact Sheets: Examples – BBNA & GLIFWC

Group Name: *Bristol Bay Native Association*

Type: Tribal Group Region: Alaska Group: Website Additional Focus: Website Details

Description: Alaska Native Association or Nonprofit formed when ANSCA Native Corporation was provided to provide government services for community health and well being. Bristol Bay Native Association, Inc. is a Tribal Consortium, made up of 31 Tribes and is organized as a non-profit corporation to provide a variety of educational, social, economic and related services to the Native people of the Bristol Bay region of Alaska. The Mission of BBNA is to maintain and promote a strong regional organization supported by the Tribes of Bristol Bay to serve as a unified voice to provide social, economic, cultural, educational opportunities and initiatives to benefit the Tribes and the Native people of Bristol Bay in SW Alaska. BBNA's Natural Resource Programs protect the rights of Bristol Bay villages to choose how to continue to meet their subsistence, cultural, and economic needs. Consistent with solid stewardship, sustainability and self-reliance, the program helps advance our village's natural resource management goals.

Awards

- Ocean and Coastal Management Planning for Practical Methods for Bristol Bay Villages to Document and Plan for Climate Change

Affiliated Tribes

- Koliganek (New Koliganek Village Council)
- Perryville (Native Village)

Documents

- BBNA Implementation Strategy, Recovery, and other regional energy plans

Tools

Examples

- Partner on: Assessing the Timing and Extent of Coastal Change in Western Alaska

Data & Maps

Intertribal Climate Resilience Fact Sheet Great Lakes Indian F&W Commission

Group Name: *Great Lakes Indian F&W Commission*

Type: Tribal Group Region: Great Lakes Group: Website Additional Focus: Website Details

Description: The Great Lakes Indian Fish & Wildlife Commission is commonly known by its acronym, GLIFWC. Formed in 1984, GLIFWC represents eleven Ojibwe tribes in Minnesota, Wisconsin, and Michigan who reserved hunting, fishing and gathering rights in the 1837, 1842, and 1854 Treaties with the United States government. GLIFWC provides natural resource management expertise, conservation enforcement, legal and policy analysis, and public information services in support of the exercise of treaty rights during well-regulated, off reservation seasons throughout the treaty ceded territories. GLIFWC is guided by its Board of Commissioners along with two standing committees, the Voigt Intertribal Task Force and the Great Lakes Fisheries Committee, which advise the Board on policy.

Awards

Affiliated Tribes

Documents

- ERT Tool: G-WOW Guiding for Tomorrow: Changing Climate, Changing Culture

Tools

Examples


Data & Maps

- GLIFWC Map of Ceded Tribal Territories

Intertribal Groups include Sections for Member Tribes - with links back to their Fact Sheets! + Tools, Data & Maps, Awards, Examples, and Climate Documents

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

56



Traditional Knowledges / Traditional Ecological Knowledge Integration

Tribal Climate Resilience Resources

Traditional Knowledges / Traditional Ecological Knowledge

Orientation

Indigenous traditional knowledges (TKs) have emerged in national and international arenas as rich information for indigenous and non-indigenous climate assessments, policies, and adaptation strategies. With this growing recognition, however, comes potential risks to indigenous peoples in sharing TKs in federal and other non-indigenous climate change initiatives. These resources assist Tribes, Agencies, and other Partners build respectful, complimentary efforts together.

Guidance

- Tribal Nations Summary and References
- Guidelines for TK, Primer, Ethics Essay in Toolkit**
- NP-NH Climate Change Workshop II Report
- First Stewards 2012 Witness Report
- Rising Voices Reports and Outcomes
- AIAN Guide to Build Cultural Awareness

Research Papers

- CMN SDI Model
- Best of 2 Worlds: TEK in ESB Management
- CC and Indigenous Peoples in the U.S.
- Guarding Against Exploitation: TEK & CC
- Engagement that Honors TKs
- TCCG Publications
- IPCC Portal Publications - Books

Federal TEK Awareness

- ACCNCRS TK Guidelines and Primer - Summaries
- CC Through an Intersectional Lens
- USFS Exploring Role of TEK in CC Initiatives
- USFS Bridging the Gaps that Divide
- US FWS Basic TEK Info
- NIH TEK and Its Value for EHS
- NIH TEK Workshop Day 2
- EPA Using TEK to Adapt to CC
- EPA TSC: TEK in Policy and Decision Making
- NOAA TEK and CC Impacts
- NPS Integrating TEK into NRM
- Tribal Engagement in CSCs and

Examples

- CMN SDI Model to Inform Climate Initiatives

Videos

- Braids of Truth, Part Two: Climate Change
- ITEP: Adapting to Change

When working with Tribal Nations, federal and academic projects and partners are often enriched by the deeply integrated understanding of the relationships among all living things that indigenous people have honed since time immemorial. This may lead to breakthroughs in adaptation through keen natural observations, unique perceptions, and a focus on harmonious ways. Learn more with [TKs/TEK](#) links!

113

TCR Resource Guide: Youth Resources

Tribal Climate Resilience Resources

Youth and Climate

Orientation

Tribal Youth are increasingly impacted as their families and communities attempt to sustain tribal lifeways in the face of climate disruptions. Climate change curriculum, educational groups, internships, and programs may help Tribal Youth gain a sense of empowerment to address climate challenges.

Tribal Youth, Education, and Climate Groups

- Bureau of Indian Affairs Tribal Climate Resilience Program
- Bureau of Indian Education Schools
- American Indian Higher Education Consortium (AIHEC)
- American Indian Association of Engineering and Science (AISES)
- National Indian Education Association (NIEA)

Tribal Student Climate and STEM Career Funding

- NASA Tribal College and University ELO Program Internships
- CMN SDI Indigenous Planning Summer Institute
- NAU ITEP Environmental Education Outreach Program
- American Indian College Fund Internships, Fellowships, Scholarships, and Opportunities

Tribal Climate Curriculum

- Guidelines for Considering Traditional Knowledges in Climate Change Initiatives
- National Climate Assessment, C.12. Indigenous Peoples, Lands, and Resources
- Tribal Nations (and Arctic) in the U.S. Climate Resilience Toolkit tools, cases in six strategies
- G-wow Guiding for Tomorrow (Great Lakes)

Youth Topics include Groups, Funding, Climate Curriculum, Climate Programs, Examples, Research Tools, College-Ready,

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

57



Getting the Most out of the *Tribal Climate Resilience Resource Guide*

- Tribal Liaisons can visit a [Region](#) or [Tribal Fact Sheet](#) with a Tribe or Intertribal Group to discuss resources and option for considering climate
- A Tribe can visit each [Agency Fact Sheet](#) to gain better understanding of the full breadth of federal support
- College faculty and advisors can review the [Youth page](#) with students interested in [STEM fields](#) & climate change
- Academic and non-profit partners should carefully review the [Traditional Knowledges \(TKs\)](#) section to ensure respectful, well-integrate climate projects and policies that protect knowledge and knowledge-holders

115

ACCESSING TRIBAL NATIONS TOOLKIT AND CLIMATE DATA FROM THE TRIBAL CLIMATE RESILIENCE RESOURCE GUIDE



116

Find BIA Tribal Climate Resilience Program support at:
<http://bia.gov/WhoWeAre/BIA/climatechange/>
or just visit <http://bia.gov> and Select Category: *Climate*

UNM IEP Session #2: *Tribes & Climate*
Monday, 11/14/16 5PM-5PM

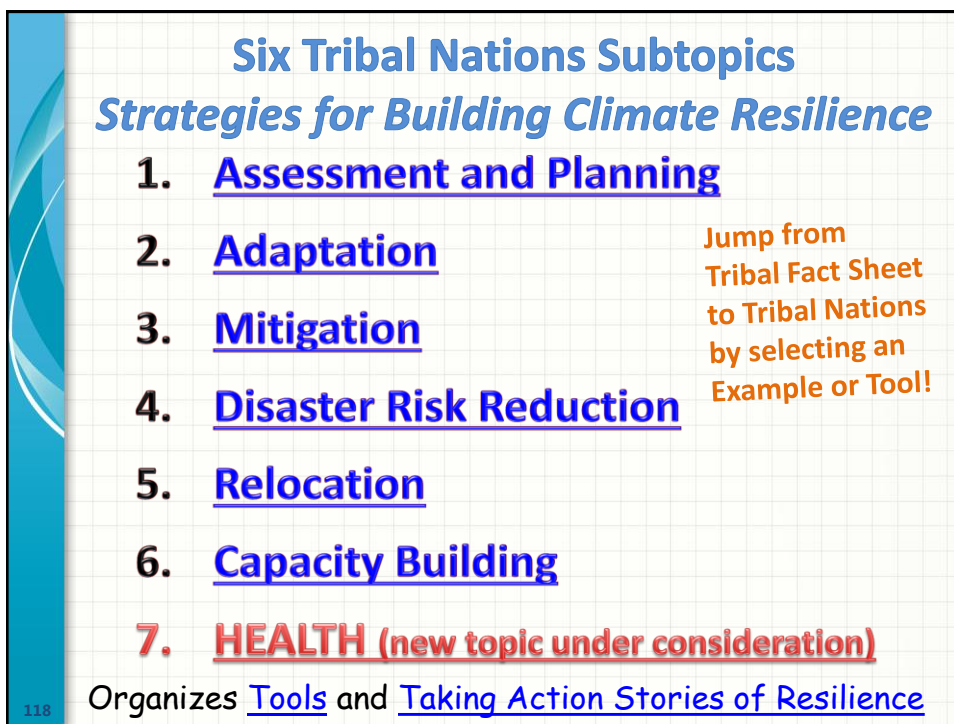


Jump from Tribal Fact Sheet to Tribal Nations by selecting an Example or Tool!

TRIBAL NATIONS & ARCTIC TOPICS
IN THE U.S. CLIMATE RESILIENCE TOOLKIT

<http://toolkit.climate.gov/topics/tribal-nations>
<https://toolkit.climate.gov/topics/arctic>

117



Six Tribal Nations Subtopics
Strategies for Building Climate Resilience

1. **Assessment and Planning**
2. **Adaptation**
3. **Mitigation**
4. **Disaster Risk Reduction**
5. **Relocation**
6. **Capacity Building**
7. **HEALTH (new topic under consideration)**

Jump from Tribal Fact Sheet to Tribal Nations by selecting an Example or Tool!

Organizes **Tools** and **Taking Action Stories of Resilience**

118

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

Tribal Nations Taking Action Cases

Taking Action

Clear Filters


Filter by climate threat/stressor: ▼

Filter by parent topic: ▼

Filter by steps to resilience: ▼

Filter by region: ▼


Communities and businesses are taking action to reduce their vulnerability to climate-related impacts and to build resilience to extreme events. The stories below illustrate the application of the process and tools featured in this Toolkit. Browse the stories, or filter by topic, step to resilience, and/or region in the boxes above. To expand your results, click the Clear Filters link.



Yukon Delta Villages Document Baseline Environmental Data

Students and community residents of four remote Alaskan villages measure environmental data to identify their climate vulnerabilities.


Read more >



Looking to the Future on Alaska's North Slope

As ice retreats and energy resources along Alaska's North Slope become more accessible, diverse stakeholders consider potential futures and develop a science-informed view of the implications of development in the region.


Read more >



Quinault Indian Nation Plans for Village Relocation

As the threats of tsunami and sea level rise are joined by real and potential climate impacts, the Quinault community looks to move the lower village of Taholah to higher ground.


Read more >




Relocating Kivalina

Rising seas and coastal erosion are eating away at the barrier island on which the Alaska Native Village of Kivalina rests. Residents and others are making concerted efforts to move the community to safety.


Read more >




Navajo Nation- Hotter, Drier



Preparing to Respond to Oil



Squamish Build Resilience



Confederated Salish and

Case Studies of Resilience in Action!

Nationwide, any Tribe or Tribal Group can share to encourage others!!

Tribal Nations Cases –Sidebar Links

Steps to Resilience:

✓ Step 1: Identify the Problem

✓ Step 2: Determine Vulnerabilities

✓ Step 3: Investigate Options

➔ Step 4: Evaluate Risks & Costs

Step 5: Take Action

Tools:

Guidelines for Considering Traditional Knowledges in Climate Change Initiatives >

Local Environmental Observer (LEO) Network >

Scenarios Network for Alaska + Arctic Planning (SNAP) Tools >

Seven Generations–Community-Based Environmental Planning >

Topic:

Arctic > Arctic Oceans, Sea Ice, and Coasts >

Coastal Flood Risk > Coastal Erosion >

Tribal Nations > Disaster Risk Reduction >

Tribal Nations > Relocation >

Relocating Kivalina

Rising seas and coastal erosion are eating away at the barrier island on which the Alaska Native Village of Kivalina rests. Residents and others are making concerted efforts to move the community to safety.

Additional Resources:

ANTHC | Climate Change in Kivalina, Alaska: Strategies for Community Health (PDF) >

Re-Locate Kivalina | Re-Locate Receives 2015 ArtPlace America Grant >

Alaska Community Coastal Protection Project | Kivalina Project Page >

U.S. Army Corps of Engineers | Relocation Planning Project Master Plan for Kivalina, Alaska (PDF) >

Partners:

Native Village of Kivalina >

Kivalina Relocation Planning Committee >

U.S. Army Corps of Engineers | Alaska District >

U.S. Bureau of Indian Affairs >

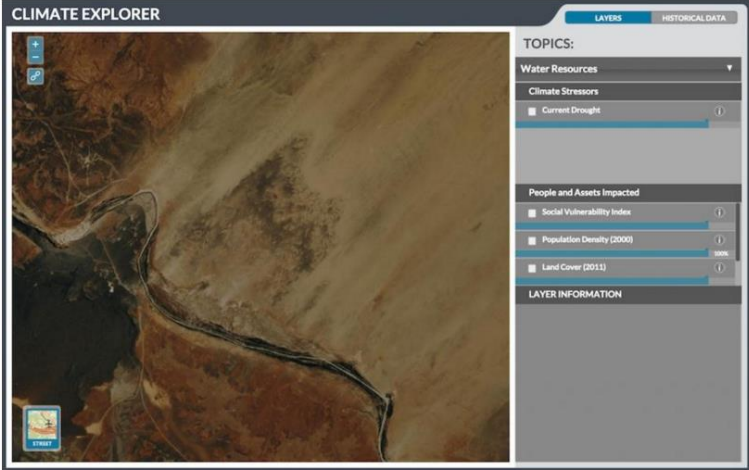
Sidebar links to each Case provide Rich Resources

Stage of progress, Topical Cross-links, Resources, Data, & Partners

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

60

Tribal Nations: Climate Explorer



This image shows a satellite view of the Grand Falls Dune Field (the same area shown in the annotated image above) in the Climate Explorer tool.

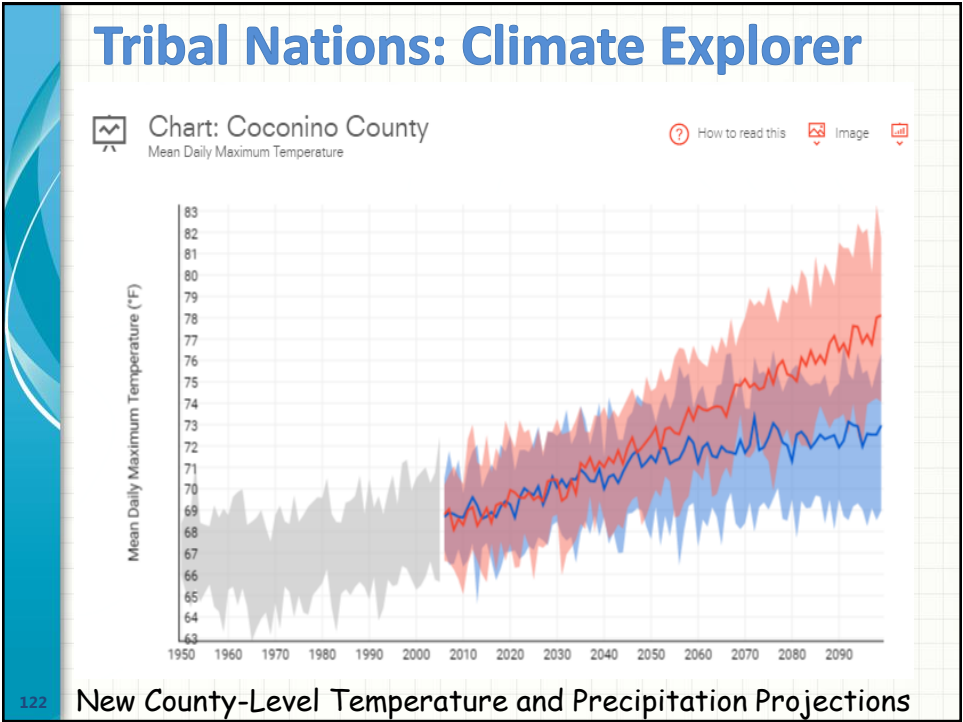
You can explore the dune field and climate data in the interactive tool yourself, or follow the instructions below. To get started, click the Climate Explorer image above to open the tool in a new browser window. You'll need to come back to this tab to read the descriptions and instructions for the guided exploration.

1. What does the dune field look like?

- Zoom out a couple of steps to get a big picture view of the region. What do you see in the image that indicates the prevailing wind direction?

121

Scroll to bottom of Tribal Nations Cases to Explore Map



Tribal Nations Cases

Taking Action

Clear Filters

Filter by climate threat/stressor: ▼

Filter by parent topic: ▼

Filter by steps to resilience: ▼

Filter by region: ▼

Communities and businesses are taking action to reduce their vulnerability to climate-related impacts and to build resilience to extreme events. The stories below illustrate the application of the process and tools featured in this Toolkit. Browse the stories, or filter by topic, step to resilience, and/or region in the boxes above. To expand your results, click the Clear Filters link.



Yukon Delta Villages Document Baseline Environmental Data
Students and community residents of four remote Alaskan villages measure environmental data to identify their climate vulnerabilities.
[Read more >](#)



Looking to the Future on Alaska's North Slope
As ice retreats and energy resources along Alaska's North Slope become more accessible, diverse stakeholders consider potential futures and develop a science-informed view of the implications of development in the region.
[Read more >](#)



Quinault Indian Nation Plans for Village Relocation
As the threats of tsunami and sea level rise are joined by real and potential climate impacts, the Quinault community looks to move the lower village of Taholah to higher ground.
[Read more >](#)



Relocating Kivalina
Rising seas and coastal erosion are eating away at the barrier island on which the Alaska Native Village of Kivalina rests. Residents and others are making concerted efforts to move the community to safety.
[Read more >](#)



Navajo Nation- Hotter, Drier



Preparing to Respond to Oil



Squamish Build Resilience



Confederated Salish and

Other Recommended Cases to Include???

Please recommend other Alaska Native Taking Action Cases

123



DATA TOPICS ▼ IMPACT APPLICATIONS DEVELOPERS CONTACT

CLIMATE — TRIBAL NATIONS

Themes ▼ Data Resources ▼ Challenges Feedback



Tribal Nations are disproportionately affected by climate change, yet many lead the nation in building awareness and addressing climate impacts to their traditional lifeways. Through renewable

TRIBAL NATIONS & ARCTIC THEMES IN THE NASA CLIMATE DATA INITIATIVE @ DATA.GOV

<http://www.data.gov/climate/tribal-nations/>
<http://www.data.gov/climate/arctic/>

124

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

62

125

Tribal Nations Theme Components

- Overview / Framing Questions
- GIS Datasets for Indian Lands, Ceded Lands
- Resources > Maps (interactive and printable)
- Resources > Tools (by subtopic)
- Resources > Featured Content
- Mapping Challenges

Organizes [Tools](#) and [Taking Action Stories of Resilience](#)

126

Arctic & Tribal Nations Theme: Data

Tribal Nations Data

Indian Lands datasets are difficult to understand. Other data sharing questions.

Tribal Nations Data

[BIA Indian Lands Dataset \(Indi](#)

[Indian Land Areas Judicially Es](#)

Generally, climate data by themes States, except for differences in data resources:

Arctic Theme – Related data, t 567 federally recognized tribe

Coastal Flooding Theme – Rel and other communities living a associated with growing storm

Ecosystem Vulnerability – Rel integrity and stability of ecosy which Tribal Nations tradition

CLIMATE — ARCTIC

Themes ▾ Data Resources ▾

Arctic Data

The U.S. government and its partners hav organized around seven different topic ar

- [All Arctic data](#)
- [Arctic Ocean, Sea Ice, and Coasts](#)
- [Melting Glaciers, Snow, and Ice](#)
- [Arctic Weather and Extreme Events](#)
- [Permafrost and Arctic Landscapes](#)
- [Arctic Development and Transport](#)
- [Arctic Peoples and Ecosystems](#)
- [Arctic-Global Teleconnections](#)

Topic Categories:

Arctic ▾ Arctic Ocean, Sea Ice and Coasts ▾

Topics:

Climate ▾

Filter by location

Enter location...

118 datasets found

NOAA Climate Data Record (CDR) of Sea S
of 57 recent views
National Oceanic and Atmospheric Administrat Surface Bundle (OSB) Climate Data Record (CDR) surface atmospheric properties, and heat fluxes...

Maritime Limits and Boundaries of United S
National Oceanic and Atmospheric Administrat for depicting on its nautical charts the limits of the Contiguous Zone, and 200 nautical mile...

NOAA Optimum Interpolation 1/4 Degree Analysis, Version 2
of 25 recent views
National Oceanic and Atmospheric Administrat sea surface temperature (SST) analysis product w technique. The SST analysis has a spatial grid...

National Solar Radiation Data Base
of 23 re

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817


63

Tribal Nations Theme: Map Gallery


Tribal Nations Maps

The Tribal Nations Map Gallery includes printable PDF wall-map versions (24×36) of the Indian and Ceded Lands Web Services found in the data tab.


The Map Gallery also includes interactive maps from federal partners, intertribal groups, and a tribal climate map showcase of example work products to inform climate resilience efforts of tribes, Alaska Natives, and other diverse communities nationwide.




Indian Lands in the United States




Indian Land Areas Judicially Established 1978 and American Indian Reservations




DOE Tribal Energy Programs




Great Lakes Indian Fish and Wildlife Commission Maps




DOI Climate Science Centers



DOI Landscape Cooperatives



USDA Climate Hubs



USFS Tribal Connections - US Forest Service Indian Lands Map Viewer

Interactive data access and printable maps
Can add region-specific climate maps here or keep private!

127

ArcOnline: Interactive Story Maps

Alaska Natives, Climate Factors, and Resilience

Rising Temperature

Sea Ice

Tundra Greenness

Coastal

Shifting and Invasive Species

EDIT

B

I

I_x

A

Size

1

2

3

4

5

6

This Map demonstrates where imperiled communities are located according to USACE baseline erosion studies conducted 2006-2008 confirmed in a 2009 GAO report. Select a community to

Names (Federal Register): *Newtok Village*

Federal Links: Select the Agency Acronym for the full Agency Fact Sheet and the link to its right for a more specific regional contact or homepage.

Tribal: Official Website (or group site)

BIA Region: Alaska Regional Fact Sheet

DOE: AK

CSC: Alaska

LCC: Western Alaska

FWS: Alaska

USDA CLIMATE HUB: Pacific Northwest

USDA NRCS Locator: USDA USFS: Alaska

NOAA Region: RISA: ACCAP

EPA: R10

FEMA: R10

HUD: Alaska

Awards

Documents

Examples

Groups

Tools

Data & Maps

Name

Newtok Village

Short Name

Newtok

LCC Name

Western Alaska

Fact Sheet

More info

GAO Imperil

-1

Identified

USACE

Access to TCR Resources from Interactive Map and back from Data & Maps of each Tribal Fact Sheet

128

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817

64

Find BIA Tribal Climate Resilience Program support at:
<http://bia.gov/WhoWeAre/BIA/climatechange/>
or just visit <http://bia.gov> and Select Category: *Climate*

UNM IEP Session #2: *Tribes & Climate*
Monday, 11/14/16 5PM-5PM

BIA GIS Web Portal: Awards Map – new!

Tribe or Group Name: Walker River Paiute Tribe of the Walker River Reservation, Nevada

Total Amount Funded: \$147363

Number of Awards: 4

Award Details + Climate Resources: [Fact Sheet](#)

Names (Federal Register): *Newtok Village*

Federal Links: Select the Agency Acronym for the full Agency Fact Sheet and the link to its right for a more specific regional contact information.

Tribal: Official Website (or group site)

BIA Region: Alaska Regional Fact Sheet	DOE: AK
LOC: Western Alaska	FWS: Alaska
USDA NRCS Locator, USDA USFS: Alaska	NOAA Region, RISA: ACCAP
FEMA: R10	HUD: Alaska

Awards

- ACCIMP Community Planning Grant for: Newtok

Groups

- Association of Village Council Presidents
- Calista Corporation

Documents

- Alaska Community Coastal Protection Project (ACCIPP), Newtok Planning Group
- GAO 2009 Imperiled Community Identified by USACE
- USACE 2009 Priority Action Report

Tools

Examples

- CAREX Case Study: Relocating Newtok due to Coastal Erosion
- News Article: It's Happening Now: The Village is Sinking
- UA Research: A Migratory House for Villages on the Move

Data & Maps

- SNAP Community Climate Change: Historical & Projected Temperature & Precipitation

See new Awards Map in list of Tools at the top of the BIA TCRP homepage! Access to TCR Resources from Interactive Map and back from Data & Maps of each Tribal Fact Sheet

Thank you, make sure to contact me with questions and ideas....

Margaret T. Herzog

[PE](#), [PMP](#), [PhD](#) (< Link to dissertation)

Margaret.Herzog@bia.gov

(720) 484-3353

U.S. Department of the Interior, [Bureau of Indian Affairs](#) (Contractor)
[Tribal Climate Resilience Program IT / GIS Systems & Services](#)
[Sealaska](#) - *Values in Action* (representing the Tlingit, Haida and Tsimshian of SE AK)
[MBS](#) - *Sealaska Diversity IT Solutions*
13922 Denver West Parkway, Bldg 54, Suite 300
Lakewood, Colorado 80401

Questions? Contact Margaret T. Herzog, PE, PMP, PhD, IT / GIS Systems & Services
BIA Tribal Climate Resilience Program (Sealaska MBS Contractor, Denver, CO)
Margaret.Herzog@bia.gov, (720) 484-3353, work cell (720) 630-3817